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Manpower and Organization

AIR FORCE MANAGEMENT ENGINEERING PROGRAM (MEP) - PROCESSES

This manual provides tools and information that implements AFI 38-201, *Determining Manpower Requirements*. It may be used to implement and maintain the US Air Force Management Engineering Program. It provides guidance for determining manpower requirements and publication of the Air Force Manpower Standards. Send requests for changes to this publication through the parent headquarters to HQ AFMEA, 550 E Street East, Randolph AFB TX 78150-4451, for staffing with HQ USAF/PE. Send one copy of supplements to the same address.

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Chapter 1

OVERVIEW

1.1. Introduction to the MEP:

1.1.1. Purpose of the MEP. The Air Force Management Engineering Program (MEP) exists to help Air Force commanders and functional managers improve productivity. MEP personnel furnish their customers quality and responsive, productivity improving products and services.

1.1.2. Team Approach. MEP and functional personnel build cohesive teams to reach study objectives and achieve productivity improvement goals. They write study contracts that show specific study objectives and responsibilities at various organizational levels, and work together to meet those objectives.

1.1.3. Productivity Through Process Improvement. MEP methodology is built on state-of-the-art process improvement techniques.

1.1.3.1. Process improvement begins with the identification of functional processes broken into steps. Process outputs (products and services) and customers and suppliers are identified. The study team collects data to analyze and improve these processes using techniques such as flow charts, pareto charts, histograms, and cause and effect diagrams.

1.1.3.2. Finally, MEP personnel help the functional customer implement the improved processes.

1.1.4. MEP Organization:

1.1.4.1. HQ USAF/PE gives program direction and related policy. HQ AFMEA develops processes and techniques to carry out policy, and furnishes MEP customers related technical support.

1.1.4.2. Directors of manpower and organization implement the MEP. AFI 38-101 and mission publications show Wing Manpower Office organizations.

1.2. Products and Services:

1.2.1. The Process Oriented Review (POR). This is the primary MEP service. The POR includes the following, but each may be provided as a separate service to MEP customers:

1.2.1.1. Most Effective Organization (MEO) Study. See AFI 38-201 and this manual for specific MEP products and procedures for the MEO Study.

1.2.1.2. Peacetime and Contingency Manpower Standard Studies. See AFI 38-201 and this manual for specific MEP products and procedures.

1.2.1.3. Performance Measures Study. See Volume 2 for specific MEP products and procedures.

1.2.2. Consultant Services. See AFI 38-201 and this manual for specific MEP products and procedures.

1.3. Process Oriented Review Policy:

1.3.1. Qualification Criteria. To qualify as a completed process oriented review, the study products must meet the minimum requirements specified for an MEO Study, a peacetime or contingency manpower standard study, or a performance measures study.

1.3.2. Scheduling Policy:

1.3.2.1. Air Force and major command (MAJCOM) offices of primary responsibility (OPR) will continually evaluate functions for review. To determine the need for, and scope of, study updates, use process changes, opportunity for process improvement, organization and mission changes, as well as indicators from Air Force management information systems.

1.3.2.2. HQ USAF/PE approves all process oriented review exemptions. Functions will normally not be exempted.

1.3.2.3. HQ AFMEA performs process oriented reviews for Air Force common functions, for example, Military Personnel Flight.

1.3.2.4. MAJCOMs perform process oriented reviews for MAJCOM-unique functions, for example, technical training. HQ AFMEA will publish all resultant manpower standards.

1.3.3. Documentation Requirements. POR documentation must include, at a minimum, a study contract and process oriented review report. This publication shows separate study contracts and reports for each POR product, that is, MEO, standard, and performance measures. A single contract and report, having the required information, meet POR documentation requirements.

1.4. MEP Product Requirements. See specific MEP service (that is, MEO, standards development, etc.) for

product requirements.

Chapter 2

STUDY PLANNING

2.1. General Concepts. Proper planning is critical to effectively meet objectives of any MEP study. The extent of the planning will vary by study type, objectives, and functional complexity.

2.2. Planning Considerations:

2.2.1. Study Objectives. Base objectives on customer needs and then determine type and extent of study to accomplish the objectives. The study team must ensure all objectives are realistic and attainable.

2.2.2. Responsibilities. Define responsibilities of functional and manpower team members. Identify manpower and functional contact points at higher headquarters who will coordinate on study products and assist in resolving study issues.

2.2.3. Data Availability and Accessibility. Determine what data is needed. You may need to break generally stated objectives into specific activities (tasks). Identify specific outputs. Determine if the data is available to meet output related study objectives. Determine data availability and accessibility by reviewing functional publications, discussions with functional experts, management information system (MIS) documentation, previous manpower standards, etc. Data security classification impacts data accessibility. Clearly state in the study contract conditions governing availability of data.

2.2.4. Functional Characteristics:

- Complexity and size--Large, complex functions require more planning, research, and study effort; consider cost and coverage needs.
- Stability--Studies of dynamic functions undergoing frequent reorganizations, changes in workload, shifts in responsibilities could be costly and long term. In these functions, consider short term, low cost (macro-level/reduced measurement detail) studies. For standards development studies, also consider future maintenance of the standard.
- Degree of Standardization in Organization, Procedures, Equipment, and Layout--Consider level of standardization to determine measurement methods. Work sampling or time study is appropriate for very standardized functions, but very costly. Consider level of effort and return on the effort when choosing measurement methods.

2.3. Research Methodology. Primary drivers of research methodology are data requirements and customer timeliness needs. Research methodology impacts study effectiveness and efficiency. Following are some research methods and sources.

2.3.1. Documentation Review. To become familiar with the function's mission, organizational structure, and operating procedures, review functional documentation and records. Ensure functional guidance is realistic and consistent with peacetime and wartime scenarios and operational concepts as pertains to manpower. Some examples follow:

- Organizational policy and guidance (AFI 38-101) and organization charts.
- Functional publications (command or Air Force).
- Mission publications (AFPD 10-series).
- Policy correspondence.
- USAF War and Mobilization Plan (WMP).
- P-series documents.
- Applicable operations and contingency plans.
- AFI 10-401.
- Recent force sizing, unit type codes (UTC) and time-phased force deployment lists (TPFDL). Reports--MEP studies, productivity reports, cost comparison studies, management inspections, effectiveness evaluations.
- Specialty training material.
- Manpower documents and changes.
- Position Descriptions.
- Management information systems or RCS reports.
- Unit histories.
- USAF technical orders.
- Occupational measurement surveys.
- Work center records and inspection checklist.

2.3.2. Personal Interviews. Primary objectives are to collect information on what and how work is done, workload, operating procedures and to involve work center personnel by asking for their ideas.

2.3.2.1. Interview Approach. Provide an agenda (time, subject, and material). Keep interviews informal but follow the organizational structure by starting with the work center supervisor. Some suggested sources follow. Interview:

- Chief enlisted manager and 9-skill level superintendent for broad career field

information; technical familiarity with lower level tasks and procedures may not be current.

- The 7-skill level NCO for the best technical information.
- The 5-skill level airman or NCO for the best information about tasks done within shops or offices.
- The 3-skill level apprentice for labor-intensive work and extra work details.

2.3.2.2. **Individual vs Group Interviews, Advantages, and Disadvantages:**

- Individual interviews take more time but yield more data. Focus questions on a specific individual without having other group members waiting. No individual overshadows other group members. Disadvantage: May get conflicting information that must be reconciled.
- Group interviews are more effective when time is limited or there is disagreement among group members. Group interviews normally result in a group consensus and help members recall additional tasks.

2.3.2.3. **Interview Process.** The four steps of the process are planning, opening, continuity and controlling, and closing the interview. Refer to Professional Military Education courses and other sources for explanation of the process.

2.3.3. **On-Site Observations:**

2.3.3.1. Consider visiting a cross-section of locations with the functional representative. Attend exercises and deployments. Discuss findings with the functional OPR and verify findings with local managers and supervisors. Screen suggestions for potential use.

2.3.3.2. Use on-site observations to:

- Identify processes, working relationships, and physical arrangements for improvement.
- Increase understanding of procedures and data obtained.
- Obtain information on work environment and worker productivity (idleness, work distribution, team discipline, cleanliness, work layout, excessive standards of living, short suspenses).

2.3.3.3. When conducting on-site observations:

- Look closely at high volume of work. People work harder when watched; or unusual operating conditions may exist.
- Avoid biases. Do not let general impressions bias facts and findings.
- Avoid prolonged observations. It disturbs people and reduces their willingness to help.

2.3.4. **Questionnaires.** A questionnaire is a quick and inexpensive tool to gather information when there is not enough time to interview personnel or potential interviewees are at other locations. Develop questions as follows:

- Determine information needed.
- Ask direct, specific questions. Phrase questions so answers are easy, short, and concise. Use preprinted response formats when possible.
- Avoid emotional connotations. Do not influence answers with phrasing.
- Avoid manpower jargon. Direct the questionnaire to the audience's ability and knowledge.
- Place questions in logical sequence for ease of response and analysis.
- Avoid asking attitude or opinion questions. If this is necessary, comply with AFI 36-2601.

2.3.5. **Manpower Data System (MDS).** Collect statistical data of the population under study from the MDS. Determine the range of work center sizes and associated average size. Average size of the work center could show overspecialized or generalized work centers.

2.4. **Scheduling.** The scope of the study will impact study completion time and scheduling. Following is one way to approach the scheduling activity:

- Estimate time needed for various study activities.
- Identify most effective order to accomplish tasks which can be done simultaneously.
- Estimate total study time by summing activity/task times; include time for report preparation and staffing.
- Prepare list of major milestones and completion dates (data collection, analysis, report preparation, staffing)
- As required, prepare detailed schedule identifying tasks, responsible team member, estimated completion date, and task procedures.

2.5. **Study Alternative.** Consider adapting an existing study. Some possibilities are:

- Use previous command manpower standards.
- Change peacetime processes and frequencies to reflect wartime operations.
- Use other DoD or federal agency standards. Use private sector job standards.
- Use any portion of existing manpower standards that apply to the function under study.

3.1. Purpose of Consultant Services. The MEP offers consultant services to its customers at all levels of command. Commanders, functional managers and supervisors may request consultant services to help solve an existing or potential problem, or get general information or advice about manpower management issues.

3.2. Definition of Consultant Services. Consultant services direct manpower and management engineering expertise toward problem resolution, effective resource use or improvements in mission performance. They include brief consultation with management and more in-depth consultations requiring a study contract and report. Customers at any organizational level may request them.

3.3. Consultant Services Requirements:

3.3.1. Consultant Requirements. There are not any requirements for brief consultations; except, when they evolve into an in-depth formal study. When that occurs, the following requirements apply:

3.3.1.1. The MEP consultant and customer form a study partnership. They cooperate in all special study activities to include study planning, data collection, analysis, and implementation.

3.3.1.2. The client makes final acceptance and rejection decisions on study recommendations.

3.3.1.3. The MEP consultant helps the client with the implementation of recommendations and conducts follow up visits to help evaluate results.

3.3.1.4. The MEP consultant is responsible for study confidentiality and may only release study results and documents with the client's permission.

3.3.1.5. Decide study feasibility before study acceptance. Consider the following when evaluating feasibility:

3.3.1.5.1. The client cannot complete the project alone.

3.3.1.5.2. A one-time, economical and relatively short-term analysis is needed to solve a problem.

3.3.1.5.3. The client has tried but cannot define or solve the problem.

3.3.1.5.4. The specialized knowledge and skills needed to solve problems are not available within the client's own resources.

3.3.1.5.5. A MEP consultant can offer new concepts or innovative techniques to act as catalysts for change.

3.3.1.5.6. An objective, impartial viewpoint is needed to give a fresh approach to a difficult problem.

3.3.1.6. DON'T do a study if the MEP consultant believes the sole purpose is to:

3.3.1.6.1. Justify predetermined manpower increases or decreases. However, if the outcome substantiates a needed manpower change, the study report may be staffed and implemented as a variance when the client agrees and it doesn't violate the precepts of the client-consultant relationship. Additional MEP effort isn't required if the proposed standard meets the reasons for the Standard Development Process listed in paragraph 4.1.

3.3.1.6.2. Expect the consultant to make a line management decision for the client.

3.3.2. Documentation Requirements. Consultant service products objectively state analysis results and help the commander, manager, or supervisor decide about alternative courses of action.

3.3.2.1. Formal reports are not required for brief consultations. Exercise customer oriented judgment to decide the effort and detail required to satisfy the client's needs.

3.3.2.2. An in-depth, formal study must have a minimum of three output products:

3.3.2.2.1. The first is the Study Contract (figure 3.1). This written agreement constitutes a study contract between the MEP consultant and the MEP customer. It forms the basis for all follow-on study activities. Include additional items as agreed.

3.3.2.2.2. The second is the Study Report (figure 3.2). The MEP consultant documents study findings in the study report. Include additional items as agreed. A copy of the complete study contract may be substituted for the preface material. Include additional items or technical exhibits as agreed.

3.3.2.2.3. The third output is the Study Abstract (figure 3.3). The primary purpose of the study abstract is crosstell. Its use is based on the potential applicability of identified improvements to other sites or functions. Include additional items as agreed.

Figure 3.1. Example Consultant Study Contract.

CONSULTANT STUDY CONTRACT FOR (WORK CENTER TITLE AND FAC)	
1. STUDY TITLE. Provide title that reflects study purpose.	
2. PROBLEMS. Describe specific problems study will address.	
3. STUDY OBJECTIVES. List specific study objectives based on stated problems.	
4. CONSTRAINTS. List specific constraints, e.g., budget, equipment, facilities that must be considered when identifying alternative solutions.	
5. STUDY SCOPE. State where recommendations will apply, if implemented, and where research will be conducted.	
6. METHODOLOGY. List research techniques, e.g., interviews, questionnaires, work sampling, etc.	
7. STUDY TEAM. Give name, rank, organization and DSN number of manpower and functional personnel involved in the study.	
8. TEAM AUTHORITY. State the authority of team members in conducting the study, e.g., access to records, interviewing personnel, etc.	
9. RESPONSIBILITIES. State "who will do what" to meet study objectives.	
10. MILESTONES. List significant study milestones start and stop dates.	
11. APPROVAL AUTHORITY. State who will have the authority to approve and implement recommendations (if different from the functional approval authority indicated below).	
12. CONTRACT APPROVAL AUTHORITIES. Provide signature blocks for the manpower and functional approval authorities.	
MANPOWER APPROVAL AUTHORITY	FUNCTIONAL APPROVAL AUTHORITY

Figure 3.2. Example Consultant Study Report Format.

<p>1. STUDY TITLE. Consultant Study Report for (FAC and Title).</p> <p>1.1. Preface. Summary of information that is contained in the study contract (e.g., improvement objectives and study scope.)</p> <p>1.2. Table of Contents.</p> <p>2. SECTION I. SUMMARY OF CONCLUSIONS, RECOMMENDATIONS AND BENEFITS:</p> <p>2.1. Conclusion. (These form the basis for recommendations.)</p> <p>2.2. Recommendations. Include a brief summary of the proposed recommendations.</p> <p>2.3. Benefits. Include a summary of benefits showing impact if all study recommendations are implemented.</p> <p>3. SECTION II. STUDY DETAILS:</p> <p>3.1. Detailed description of study objectives and study scope.</p> <p>3.2. Discussion. Identify the problems, facts and assumptions and describe any problems associated with the present process or procedure. Including the impact on the overall effectiveness of the work center.</p> <p>3.3. Conclusion. Include a detailed description.</p> <p>3.4. Recommendations. Include a detailed description.</p> <p>3.5. Benefits. Include a detailed list of benefits expected by implementing the recommendations. Including such items as a statement of increased operational effectiveness, estimated savings and significant intangible benefits. This section clearly demonstrates to the customer the benefits of using the recommendations.</p> <p>3.6. Proposed Implementation Plan. Design an implementation plan the OPR can follow to implement the recommendation. It should state who should do what and when. This may be submitted separately after the client is reasonably sure they want such a plan.</p> <p>4. SECTION III. DOCUMENTATION. This includes work counts, shift profile charts, layout charts, and other items used to support the recommendations or let the customer analyze alternative proposals.</p>

Figure 3.3. Example Special Study Abstract Format.

<p>SPECIAL STUDY ABSTRACT</p> <p>1. STUDY IDENTIFICATION:</p> <p>1.1. Command. Self-explanatory.</p> <p>1.2. Study Title. Same as report title.</p> <p>1.3. Functions Involved. Use the work center title and functional account code used in the unit manpower document.</p> <p>1.4. Study Location. Self-explanatory.</p> <p>2. DATE RESULTS BRIEFED TO CLIENT. Self-explanatory.</p> <p>3. IMPROVEMENT OBJECTIVES. Briefly describe the study goal. If it is changed during the course of the study, merely present the end goal. It's not necessary to explain why or how the study objectives changed.</p> <p>4. RECOMMENDATIONS IMPLEMENTED. Provide a list of the recommendations implemented and the impact of each.</p> <p>5. APPLICABILITY OF IMPROVEMENTS. State whether or not improvements could be applied to other locations within the command or the Air Force. Studies involving physical layout and work flow, space utilization, or labor availability and grade peculiarities are normally applicable to the study location only.</p> <p>6. ANALYSIS TECHNIQUES. Self-explanatory.</p> <p>Signature Block Consultant</p> <p>I Concur with this study abstract and authorize its release.</p> <p>Signature Block Client</p>
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3.3.2.2.3.1. The MEP consultant and client jointly decide the applicability potential and study abstract distribution. Consider study abstract crosstell to MAJCOM M&Os and functional counterparts, MEP administrators and other pertinent Air Force organizations.

3.3.2.2.3.2. Prepare the abstract after implementation

and follow up are complete. If the MEP consultant and client decide there's no applicability potential for other sites or functions, or if the outcome of the special study was converted to an approved manpower standard or variance, the study abstract isn't required.

Chapter 4

CONCEPTS

4.1. General Concepts. This section contains an overview of standard development concepts and some potential activities. The manpower standard development process identifies a work center's man-hour to workload relationship and quantifies manpower requirements for Air Force functional activities. Use the resulting standard as a tool for the accurate distribution and use of Air Force manpower resources in both peacetime and wartime environments. The MEP representative or functional area manager at either Air Force or MAJCOM level can initiate a manpower standard development study. Some reasons for a study include:

- 4.1.1. Major changes in policy, mission, equipment, technology, organization, or work environment invalidate the existing standard.
- 4.1.2. A MEO has been designed and the manpower requirements still need to be quantified.
- 4.1.3. Performance measures system feedback data shows the standard is no longer valid.
- 4.1.4. Changes in workload volume may show the standard no longer accurately predicts manpower requirements.

4.2. Manpower Standard:

- 4.2.1. Manpower standards may be applicable to peacetime, contingency operations, or both. See AFMAN 38-208, Volume 2, attachment 1, section c, for definition of manpower standard.
- 4.2.2. Manpower standard variances address work that is not included in the core manpower standard. These differences may result in increases or decreases to core manpower requirements. Variances are caused by location differences in:
 - 4.2.2.1. Mission, for example, security for high priority resources
 - 4.2.2.2. Environment, for example, corrosion control in coastal areas
 - 4.2.2.3. Technology, for example, automated versus manual processing.

4.3. Manpower Standard Development Concepts:

- 4.3.1. Manpower standards are based on the concept that work center operations are efficient and standardized. Accordingly, base them on the most effective organization (MEO). A properly completed MEO will address the

information needed to do a standard development study, significantly decreasing familiarization and planning needs.

- 4.3.2. A single location measurement can be considered for application or adoption at all like locations.

- 4.3.3. Base measurement and computation procedures on average monthly man-hour and workload requirements.

- 4.3.4. The Air Force develops manpower standards that apply to both peacetime and wartime environments. However, because of the uncertainty involved with addressing a war scenario, there are some unique considerations that must be taken into account when developing a standard to reflect wartime requirements. Refer to chapter 9 for specific guidance for developing standards that apply to wartime environments.

- 4.3.5. Commercial activities present special opportunities to develop and maintain manpower standards. Changes to manpower occur when an activity remains in-house after a cost study. These activities do not remain static simply because a cost study has been conducted. Develop manpower and workload relationships to allow for and to document these changes as follows:

- 4.3.5.1. Use direct labor projected in the in-house cost estimate and the workload specified in the performance work statement (PWS) to develop these relationships in the form of a manpower equation. The equation may be applicable to multiple locations having the same performance requirements or may be developed for a single location.

- 4.3.5.2. Use the PWS as the basis for a process oriented description (POD) to reflect the process steps involved and the level of performance expected.

- 4.3.5.3. Once an equation is developed, changes in manpower requirements should result only from changes in workload, procedures, responsibilities, quality required, etc., that directly affect the PWS. For example, the manpower community uses the same test to review increases as the contracting officer uses if the activity goes contract and the contractor attempts to increase prices.

- 4.4. Minimum Documentation Requirement.** Minimum documentation requirements are a study contract (figure 4.1) and the Air Force Manpower Standard final report (Chapter 13, Section D). Add other information as needed.

Figure 4.1. Example Standard Development Study Contract.

MANPOWER STANDARD DEVELOPMENT STUDY CONTRACT FOR (WORK CENTER TITLE OR FUNCTIONAL AREA)	
1. FUNCTIONAL AREA: 1.1. Work center title and functional account code. 1.2. Applicability of the Study: The manpower standard will apply to (functions where the standard will apply) authorized in their unit manpower document. Standard do not apply to locations that have completed cost comparisons and remained in house or are undergoing a cost comparison.	
2. STUDY OBJECTIVES: 2.1. Describe core and variance processes. 2.2. Measure peacetime, wartime (surge and sustainment), and variance requirements (NOTE. If wartime requirements will not be addressed, state why, and when wartime studies will begin.) 2.3. Determine core manpower requirements. Build core standards based on Most Effective Organization (If not, state why.) 2.4. Develop MAJCOM and Air Force variances. 2.5. Prioritize core processes. 2.6. "Price-tag" each core process.	
3. STUDY METHODOLOGY. State whether the standard is a remeasurement, partial measurement, or an administrative update. Cite the work measurement methods to be used.	
4. DEVELOPMENT LOCATIONS. List the locations to be used for work measurement and data collection. If multiple work centers are covered by the standard, identify any work centers that were not measured at a given location.	
5. RESPONSIBILITIES. Detail the manpower and functional responsibilities needed to accomplish the objectives in paragraph 2.	
6. STAFFING, APPROVAL AND IMPLEMENTATION. Detail procedures.	
7. MILESTONES. List the significant standard study milestones.	
8. STUDY TEAM. Provide the name, rank, organization, and DSN number of manpower and functional participants.	
9. AUTHORITY. Provide signature blocks for parent headquarters manpower and functional approval authorities.	
MANPOWER APPROVAL AUTHORITY	FUNCTIONAL APPROVAL AUTHORITY

Chapter 5

MEO DEVELOPMENT

Section A--MEO Overview

5.1. General Concepts. The development of the most effective organization (MEO) is the cornerstone of the process oriented review. When an organization is not designed to operate at its most effective level, other MEP products serve little purpose other than to provide a temporary fix. An excellent way to develop an MEO is through the systems approach or concept.

5.2. The Systems Concept:

5.2.1. The essence of the systems concept, as applied to organizations, is the recognition that any organizational system is made up of numerous inputs, processes, outputs, and feedback mechanisms. The manager realizes that he or she can achieve the overall goals of the organization only by understanding the processes' interrelationships and integrating them in a fashion that enables the organization to effectively pursue its overall goals.

5.2.2. The following is a description of the systems model as it relates to MEO development and the process oriented review process:

5.2.2.1. **System Inputs.** Inputs are the resources used to produce completed outputs. For MEO development purposes, input descriptions should address, at a minimum: manpower, equipment, material and supplies, facilities, and information.

5.2.2.2. **Process Components.** The process component of the model describes the procedures for producing required outputs. Ideally, the process will include the right mix of inputs to effectively produce the outputs (products and services). Process oriented descriptions (POD) define work requirements, but for systems analysis purposes provide more detail; for example, flow process charts, systems diagrams.

5.2.2.3. **System Outputs.** Outputs are products and services provided by the organization. They are driven by the mission of the function and customer needs. Describe outputs as a completed process, for example, for Base Supply, "an equipment item issued," or for Accounting and Finance, "a travel customer serviced." Define outputs in the singular and be specific in title. In short, defining outputs is like naming potential workload factors.

5.2.2.4. **Process and Product Feedback.** Process and product feedback mechanisms provide the information needed to make the adjustments required to meet customer product or service needs. Sometimes communication problems exist between the supplier and the customer that result in misunderstandings about product characteristics, quality, quantity, or timeliness needs. There are two basic types of feedback:

5.2.2.4.1. **Process Feedback.** Process feedback is internal to the process. Its purpose is to let us know, quickly, if something is going wrong and if corrective action is needed.

5.2.2.4.2. **Product Feedback.** Product feedback focuses on the completed product or service and provides a

feedback loop from the customer to the provider of the product or service.

5.2.2.5. **External Environment.** The external environment may have significant impact on organizational effectiveness. This environment includes customers and suppliers, climatic conditions, local laws, federal and state laws, etc.

Section B--Functional Analysis

5.3. General Concepts. Functional analysis is a six-step process designed to analyze the current organization and identify the major elements: mission and responsibilities, customers and their needs, required outputs and processes, suppliers, and feedback.

5.4. Specific Procedures:

5.4.1. **Step 1: Mission and Responsibilities.** Develop a written mission statement and responsibilities summary that provide direction for the organization's efforts and focuses customer requirements.

5.4.1.1. Obtain and review any formal documentation that already exists concerning the organization's charter or areas of responsibilities. Within these documents, mission and responsibilities statements may already exist. They should be reviewed, updated, and summarized where necessary to produce brief statements of mission and responsibility that all members of the organization can effectively follow. If they do not already exist, develop the mission statement and responsibilities summary using a team approach. It is important that all members of the study team concur with the resulting mission statement and responsibilities summary.

5.4.1.2. The mission statement should answer why the organization or function exists, and describe the organizations' business. It should be customer oriented and focus on what products or services are provided by the organization. Make sure that the mission statement is brief so that it can be clearly understood by all members of the organization. It should also provide direction and a sense of purpose of the organization's members and their efforts.

5.4.1.3. The responsibilities summary should be detailed only to the extent that each organizational (work center level) member will be able to understand his or her area of responsibility. This statement should be customer oriented, using key words such as assist, create, develop, install, monitor, identify, evaluate, etc., and be linked directly to specific products.

5.4.1.4. Upon completion of the mission statement and responsibilities summary, review both to ensure consistency with the organization's overall mission. Also, the mission statement and responsibilities summary must support the mission of the next higher level organization.

5.4.1.5. Build an organization chart based on the current structure.

5.4.2. **Step 2: Identify Customers.** Produce a list of all internal and external customers. A "customer" is any

organization or individual that receives or uses products or services produced by the organization. Customers may include individuals inside or outside the organization.

5.4.2.1. List all the customers to whom the function provides products and services. The level of detail should be such that specific customers can be identified. Level of detail beyond that point should be developed by the individual work centers. Eventually this should be tiered down to the individual employee.

5.4.2.2. Check all products and services to determine whether they are consistent with the organization's mission.

5.4.3. **Step 3: Establish Customer Needs.** Determine and confirm that customer needs are consistent with the organization's mission and needs.

5.4.3.1. Compile a list of customer needs. This should include the products and services provided to each customer and the needs concerning each (that is, content, schedule, cost, accuracy, etc.). The level of detail should be such that each member of the organization will be able to understand what the requirements are for the services and products they are responsible for.

5.4.3.2. Confirm these requirements with the customers and reconfirm as necessary. You should determine from the customers what products or services are needed to fulfill their mission. You will also need to determine what products or services can be eliminated (if any), what new products or services (if any) are required to fulfill their mission, and what quality characteristics make these products or services fit to use.

5.4.3.3. Review specifications, forms, and publications concerning the products and services and update them as needed.

5.4.3.4. Prioritize new requirements identified, based on the number of customers who have the specific need and the impact on the customer.

5.4.3.5. Compile the final needs and document. Review these with the customer to ensure concurrence.

5.4.4. **Step 4: Identify Activities To Meet Customer Needs.** Identify and document organizational activities (processes) that produce products or services that meet specific customer requirements.

5.4.4.1. List the activities or processes needed to meet specific product or service needs from your customers as previously identified. Name each process that results in a product or service. The name should describe the purpose in terms of product or service rendered. Include in the list the significant steps involved. For each product and service, determine the initiating step, what internal steps take place, and the final step.

5.4.4.2. Review with functional representatives and customers.

5.4.5. **Step 5: Identify Suppliers.** Produce a list of all internal and external suppliers. Provide information and data for analysis of suppliers and supplies.

5.4.5.1. Identify the sources of the function's inputs. To do this, ask what are the resources needed to produce the products or services, and where do those resources come from?

5.4.5.2. The level of detail should be such that all employees can identify the organization's specific suppliers.

5.4.5.3. Check all inputs to determine whether they are necessary for the organization to fulfill its mission.

5.4.5.4. You may find that some inputs are not needed and can be eliminated or that new inputs are required.

5.4.5.5. Be as specific as possible, including not only organizations, but also titles of individuals who provide the inputs. These are the people who can be contacted to communicate supplier requirements.

5.4.5.6. Review the list with functional representatives to ensure completeness.

5.4.6. **Step 6: Identify and Describe or Develop a Feedback Mechanism.** This ensures that the organization has a mechanism that quickly indicates when its products or services do not meet customer requirements and expectations so that quality standards can be maintained.

5.4.6.1. If a current feedback mechanism is in place, document the Key Result Areas (see AFMAN 38-208, volume 2, attachment 1, section c). Also document the specific indicators that reflect the overall effectiveness and efficiency of the organization. Include specific descriptions of each Key Result Area; what each indicator is designed to measure; a description of the analysis methods, charts, and graphs that are used; data collection methods; who analyzes the data; and how often the feedback is analyzed.

5.4.6.2. If a current feedback mechanism is not available, help the customer in developing one. Ensure that it will facilitate making the management decisions in the most economic manner for continuous improvement in product and services. Feedback mechanisms should measure process capability, product quality, and time involved in product completion.

Section C--Process Analysis

5.5. General Concepts. Process analysis is a five-step methodology designed to improve work processes. It includes a complete review of each process identified and described during functional analysis. Analyze the processes to determine their efficiency and effectiveness in meeting the organization's mission and customer requirements. Each process is reviewed and problem areas are identified and corrective actions recommended. The emphasis of the corrective action is on fixing the causes of the problem and providing optimal solutions to promote long-term improvement.

5.6. Specific Procedures:

5.6.1. Step 1: Conduct Analysis of Each Process:

5.6.1.1. Conduct an examination of each process for opportunities for improvement and external factors that may affect improvement efforts.

5.6.1.2. Define the process boundaries. Determine where the process begins and ends. Also determine customers and outputs, and suppliers and inputs.

5.6.1.3. If a manpower standard development effort is planned, list the process steps in POD format. This will facilitate importing them into the Workshop Manpower Determinant System (WMDS) or the Manpower Standards Development System (MSDS).

5.6.2. Step 2: Prioritize the Processes:

5.6.2.1. Separate the analysis outputs that identify processes with opportunity for improvement.

5.6.2.2. Considering the analysis, prioritize the processes that present an opportunity for improvement. Have the customer set the criteria for the prioritization based on the most-to-least importance of the processes.

5.6.2.3. Document and support the prioritization.

5.6.3. Step 3: Conduct Analysis. Conduct analysis of the prioritized processes to recommend improvements in processes.

5.6.3.1. Develop flow charts for each process identified in Step 2 above.

5.6.3.2. Analyze the current process flow and examine for improvements.

5.6.3.3. Give careful consideration to customer requirements, costs, environmental constraints, and availability of suppliers and materials.

5.6.3.4. Document all recommended process improvements.

5.6.4. Step 4: Conduct Organizational Analysis.

Incorporate necessary organizational structure changes based on the elimination or addition of processes.

5.6.4.1. The Department of the Air Force is organized to train, equip, maintain, and provide operationally ready forces (along with their support) to the combatant commanders for combat operations. The main principles of organization to consider are:

5.6.4.1.1. **Functional Grouping.** Arranging related work processes in the same work center.

5.6.4.1.2. **Unity of Command.** The entire organization, or its parts, is directed by a single person.

5.6.4.1.3. **Span of Control.** The number of organizational parts or personnel one person can effectively manage.

5.6.4.1.4. **Delegation of Authority.** Placing authority at the level where the work is performed.

5.6.4.1.5. **Decision-Making Requirements.** Organizing in such a manner that decisions can be made effectively at the lowest level.

5.6.4.2. To the extent practicable and affordable, maintain a peacetime structure that avoids organizational turbulence during the transition to wartime operations that operates effectively with the least expenditure of resources.

5.6.5. Step 5: Test. Test the MEO as Requested by the Customer:

5.6.5.1. Determine the scope of the test. Decide if it will be the entire MEO (all improvements), or only a portion of the MEO (single or limited improvements).

5.6.5.2. Develop a plan for test implementation and data collection.

5.6.5.3. Select a location, or locations, that is suitable for the test.

5.6.5.4. Coordinate the plan with both the customer and the OPR at the test location to make sure that the plan is acceptable.

5.6.5.5. Implement and conduct the test for a period not to exceed 6 months.

5.6.5.6. Using data collected during the test, prepare a test report that indicates specific changes in organization efficiency or effectiveness during the test period.

5.6.6. Documentation Requirements. If the MEO study is part of another study development effort (that is, Manpower Standards Development Study, Consultant Study, or Performance Measures Study), then the study contract and final report for that particular study would apply. Otherwise use the following:

5.6.6.1. **Study Contract.** See figure 3.1. The contents and format are the same as for the Consultant Studies study contract.

5.6.6.2. **MEO Report.** See figure 5.1 for minimum MEO final report requirements and format.

Figure 5.1. Example MEO Report.

MEO REPORT FOR (WORK CENTER TITLE AND FAC)		
1. STUDY TITLE. Provide title that reflects study purpose.		
2. MISSION STATEMENT. Self-explanatory.		
3. RESPONSIBILITY SUMMARY. Self-explanatory.		
4. METHODOLOGY. Self-explanatory.		
5. PRIORITIZED PROCESSES. Provide a list of prioritized process titles.		
6. RESULTS OF LEVEL II ANALYSIS.		
6.1. Improvements. Describe each improvement identified.		
6.2. Organizational Analysis. Describe results of the organizational analysis performed.		
7. RECOMMENDATIONS. Include a detailed description of each recommendation.		
8. DOCUMENTATION. Include flow charts and any other documentation pertinent to the study.		
MANPOWER APPROVAL AUTHORITY	FUNCTIONAL	APPROVAL
AUTHORITY		

Chapter 6

WORKSHOP MEASUREMENT

6.1. General Concepts. Use of a workshop setting in the MEP provides a valuable tool regardless of the study product. A workshop provides a nonthreatening environment in which both the management engineer and the customer can exchange ideas or information.

6.2. Workshop Definition. A workshop is defined as a scheduled meeting with a predefined agenda, with a minimum of one representative from the MEP and one functional representative.

6.3. Workshop Purpose:

6.3.1. Use the workshop to define a process or conduct measurement. In most cases the workshop attendees are familiar with the processes and can be brought to a consensus on the per accomplishment times for most steps. If the workshop operational audit (OA) measurement approach is used, be sure the workshop participants are "representative" of the locations or units to which the standard will apply. The functional OPR makes the final determination on workshop composition but must assure the study team that proper representation is provided.

6.3.2. When the most effective organization (MEO) for the function is developed, present it to a group of functional

representatives. This will allow ideas to be discussed by the "experts" in a nonthreatening atmosphere. Also use the workshop to present the overall "plan of attack" to a group of functional representatives. If there are any potential problems in data collection methods or sources, they can be identified during the workshop.

6.4. Workshop Procedures:

6.4.1. **Define Purpose of the Workshop.** Before you can conduct, or even plan, a workshop, you must know the purpose or ultimate goal.

6.4.2. **Determine Location of the Workshop.** When selecting the workshop location, consider cost, availability of facilities, and the study team location. If the attendees are arriving from many locations, schedule the workshop at a centralized location; this will lessen the overall travel cost. Conducting the workshop at the study team's base will also expedite the process.

6.4.3. **Determine Who Should Attend.** Considering the purpose of the workshop, you need to determine who should attend.

6.4.3.1. If the purpose is to present ideas for an MEO and to gain MAJCOM support, request a strong contingent of MAJCOM level personnel.

6.4.3.2. If the purpose is to conduct workshop measurement, request personnel with recent work center experience.

6.4.3.3. If the purpose of the workshop includes developing a standard with wartime application, make sure personnel with a readiness background or personnel who have recently participated in contingency operations or exercises attend.

6.4.3.4. A general rule of thumb is that a good mix of officer, enlisted, and civilian personnel is beneficial. Each brings a different set of values to the workshop.

6.4.4. **Schedule Workshop.** Consider both the study needs and the needs of the attendees when scheduling the workshop. If there are conflicts with other events (major exercises, inspections, etc.), the attendees may be forced to cancel or send a replacement who does not necessarily meet the needs of the workshop.

6.4.5. **Prepare and Distribute Preworkshop Information Package.** Send an information package to

each attendee. Make it as personalized as possible (addressed by name and possibly with some specific information the attendee requested). Include base and local area information, a workshop agenda, travel instructions, and any other information that will contribute to the success of the workshop.

6.4.6. **Ensure Facilities Are Ready.** As part of the workshop planning, make sure that all equipment is available at the workshop location. Give consideration to a room layout that gives the appearance that all attendees are equal.

6.4.7. **Followup on Workshop Results.** The personnel who attend a workshop have a vested interest in the results. In many cases, they give their time and effort and never see any results. This will be true if base-level representatives attend the workshop. Send each participant a summary of the workshop results. Ask the participants to critique the workshop.

Chapter 7

STANDARD DEVELOPMENT PLANNING

7.1. General Concepts. The study team plans the study based on study contract and documentation needs. Effective study planning needs active customer participation. Management engineering and functional communities must work together to make sure timely completion of study objectives, thereby avoiding subsequent delays and misunderstandings.

7.2. Planning Considerations for Standard Development:

7.2.1. Customer Needs. The foremost consideration in study planning is what level of effort the customer needs. Standard development efforts range from the use of highly detailed and complex procedures to a simplified, abbreviated process. The study team must carefully consider the implications of study costs when determining the study level of effort and selecting the study approach. Always select as the first choice, the most timely, responsive, and least costly standard development method. Progress upward through more costly methods when it is the only way to meet customer needs and when the customer fully understands the additional costs of those options.

7.2.2. Functional Characteristics. Functional characteristics may drive the type of standard to be built, the measurement approach, and the degree of analysis and research needed to conduct the study. Consider these:

7.2.2.1. Complexity and Size. A more complex and large function may need more research to properly design a study. Specifically address balancing the cost and the coverage needs.

7.2.2.2. Stability. Do not pursue a long-term, costly study of a function that is subject to frequent reorganization, significant changes in type or volume of workload, or shifts in responsibilities. In such a dynamic function, place emphasis on short-term, low-cost studies (for example, macro-level studies or reduced measurement detail). Also, when designing the study, consider future maintenance of the standard.

7.2.3. Study Approach Alternatives:

7.2.3.1. Analyze the feasibility of adapting existing standards instead of developing a new standard. A process oriented review can be done faster and more effectively if it is based on existing information.

7.2.3.2. When considering the use of existing standards, look at these possibilities:

7.2.3.2.1. Use existing command standards for Air Force standard development, or another command's standard for MAJCOM application.

7.2.3.2.2. Modify peacetime process times and frequencies to reflect work center operations in wartime.

7.2.3.2.3. Use other DoD or federal agency standards.

7.2.3.2.4. Use job standards developed in the private sector.

7.2.3.2.5. For a standard that reflects wartime requirements, base functional guidance on a wartime concept of operations and allow variance for combat theater and noncombat theater operations. When possible, develop peacetime and wartime standards concurrently. If concurrent development is not feasible, the justification for separate study efforts is documented and kept as part of the study audit trail. At a minimum, document what the

functional community needs to do before a wartime standard can be developed.

7.2.3.3. The process oriented description and workload factors in existing standards can form the basis for study design even if all the details of the standards cannot be used. An information management work center is an example. The services provided are similar from function to function and are prescribed by Air Force publication. Unit workload is standardized by AFM 30-130 and standards have already been developed (FAC 11A1). Use AFMS 11A1 as the basic framework for a study in functional unit administration areas.

7.2.4. **Process Oriented Description (POD).** The POD is a description of work required in the work center. Chapter 10 provides instructions for developing a POD.

7.2.5. **Potential Workload Factors (PWLF).** Chapter 11 covers the identification of PWLFs.

7.2.6. **Statement of Conditions (SOC).** The SOC is a narrative description of conditions that affect the way work is done in a work center. If an MEO study has been done, this information may already be available. The purpose of the SOC is to communicate environmental conditions, travel distances, standards of living, and initiatives allowed in the standard. The SOC becomes part of the final standard and is published in the Air Force Manpower Standard (AFMS).

7.2.7. **Measurement Approach:**

7.2.7.1. The study team needs to select the most suitable approach for obtaining the minimum essential data to be used to compute manpower requirements. The goal should be to use the least expensive approach that will produce acceptably valid and representative data within the shortest time. This will pave the way to cooperatively produce quality manpower standard tools in a more responsive time, at a significantly lower cost.

7.2.7.2. The study team must first decide if it is necessary, or even possible to use work measurement techniques to get all or part of the needed data. Work measurement costs time, money, and keeps everyone involved from doing alternative work. Carefully consider the decision to use work measurement. Development of a functional model (AFMAN 38-208, volume 2, chapter 6) may be an acceptable and economical approach when work measurement is not deemed necessary or possible.

7.2.7.3. Work measurement techniques may be used through field measurement (chapter 6), workshops or both. Both approaches have pros and cons. Generally, workshop measurement has been acceptable to both functional and manpower communities because it has been shown to produce quality products with less cost and time. Many work measurement methods work very effectively and efficiently when done in a properly constituted and well-run workshop. A combination of core modeling, flow and process charting and operational audit can be successfully done by workshop to develop an MEO, the associated manpower standards and level of service options. Some limited field measurement can be used to validate workshop products. The key to developing quality products at minimal cost is to have the full participation of the pertinent functional and manpower representatives at every stage, including the workshop. Staffing, as well, should be expedited to a successful and more timely conclusion. Field measurement very often incurs the greatest overall costs, takes the longest time and frequently encounters prolonged staffing. Consequently, we must be very careful to select the correct approach, use the right tools and show their benefits and relevance to the functional representatives. Again, it must be a mutual decision to balance the cost and value added by the different measurement options.

7.2.8. **Work Measurement Locations.** Use the following if on-site measurement is necessary:

7.2.8.1. Select representative locations for work measurement and data collection. If test measurement will be used, select the test measurement site. If the workshop operational audit (OA) measurement approach is used, be sure the workshop participants are "representative" of the locations or units to which the subsequent standard will apply.

7.2.8.2. Select a sample of these locations to make sure data will incorporate high, medium, and low workload volumes and represent work center conditions. The number of locations included in the measurement depends on the size of the population. Table 7.1 gives suggested sample sizes for the population to be covered by the standard. Avoid additional locations since the extra time and cost usually only delay the study effort.

7.2.8.3. Omit locations scheduled for a cost comparison study during the same period.

Table 7.1. Minimum Number of Locations.		
R U L E	A	B
	If the total number of locations in the population is	then the minimum number of locations to be used in a standard study is
1	1-3	all
2	4-6	4
3	7-9	5
4	10-14	6
5	15-21	7
6	22-33	8
7	34-63	9
8	64-100	10
9	101-more	10% of total

Also omit locations where the function remained in-house as a result of a cost comparison study.

7.2.8.4. Get OPR concurrence on the type of locations needed (mission, geographic area, size, etc.) rather than limiting the need to specific bases.

7.2.8.5. Coordinate with the respective MAJCOM headquarters to find the earliest date input teams will be available to participate. See AFMAN 38-208, volume 2, attachment 1, section c, for definition of input team. Based on this date, set the measurement start date for the study. Other factors affecting this date are:

7.2.8.5.1. The time needed by the study team to complete measurement design.

7.2.8.5.2. Changes planned for the work center. Make sure the functional OPR understands the impact any changes in work center tasks or workload factors have on study findings. If changes are major and unavoidable, delay the start date for the study.

7.2.9. **Staffing Needs.** Consider coordination, staffing, and approval needs as defined in the study contract. In functions with decentralized management and control,

increased involvement at lower echelons is necessary. The study team must know the coordination role of each level in the functional community in order to plan the associated milestones.

7.2.10. **Skills and Grade Procedures.** Select the procedures for setting the required military AFSC and grade distribution for the work center. AFMAN 38-208, volume 2, Chapter 2, *Data Analysis and Computation*, present two methods; however, alternative techniques may be more applicable to a given function. Regardless of analysis and computation methods, identify the proper AFSC for each process in the POD. Make sure the specialty and skill level is consistent with AFIs 36-2108 and 36-2105, and the Specialty Training Standard. Do not determine civilian occupation codes and grades standard development.

7.2.11. **Standard Development Workshop.** If used, the study team leader should act as facilitator and the functional point of contact (POC) as chairperson. The chairperson makes sure the workshop is conducted in a professional manner and objectives are met.

Chapter 8

INTRODUCTION TO MEASUREMENT

8.1. Process-Oriented Measurement:

8.1.1. Process-oriented measurement is a technique that combines flow process charting and procedures charting (called Flow Procedures (FP) charting) with measurement. AFMAN 38-208, volume 2, chapter 4 provides instructions for developing flow procedure charts. These charts define the work center mission in terms of processes. Each process is made up of a series of steps (actions) which lead to an end product (result). In other words, a process is a series of related steps that culminate in a definitive output product (the work unit). List these steps in a format similar to a traditional (non-process-oriented) POD. For example,

each step within process number one is numbered sequentially (that is, 1.1., 1.2., 1.3.). See chapter 10 for more information on how to number PODs.

8.1.2. The concept is relatively straight-forward. Construct the FP charts to define the processes involved in performing the work center mission. These definitive documents become the key tools during the MEO development. Since they define the required work and show the linear relationships, they can be used to identify process quality improvements, or to point out areas for streamlining that increase work center efficiency.

8.1.3. Once this review is complete, you can use these refined documents for measurement purposes. Measurement can be done by using study team "same eyes" or "same ears" measurement, field measurement, or workshop measurement (the preferred method). Regardless of the measurement approach, the result is the same; each process is assigned a man-hour value. This permits the MEP consultant to provide senior functional leadership with a manpower "price-tag" for resource decisions regarding each process and related major output.

8.2. Workshop Measurement:

8.2.1. Workshop measurement is a method of measuring processes in a formal setting without going to the field or using input bases. The objective is to gather information or step times and frequencies about the work center or function. Use workshop measurement for DoD, Air Force, and MAJCOM studies. It's an ideal way to measure a function in a short period of time.

8.2.2. Use workshop measurement with almost any measurement technique, except work sampling and time study. It works well with flow procedures charting, operational audit, and flow process measurement.

8.2.3. Normally, follow-up workshop measurement with limited selected field testing. Keep the number and location of follow-on field test measurements to a minimum. This permits on-site assessment of the validity of the workshop data and adds to the overall credibility of the process oriented review. Field test measurements make sure accurate total net requirements were derived during the workshop. This is particularly important where borrowed or loaned manning within the organization needs to be addressed.

8.2.4. Consider the economic desirability of conducting a workshop measurement and its associated costs versus its benefits.

8.3. Pre-Workshop Measurement Activities. Although there are no hard and concrete rules for measuring in a workshop, the study team should consider these before convening the workshop:

8.3.1. The MET should be very familiar with the work center, the POD should be completed, and the measurement technique should be decided.

8.3.2. Develop the workshop's objectives; that is, how many processes need to be measured, do frequencies and benchmark times need to be collected, how many work centers are there, and what is the scope of the study.

8.3.3. Find out how much time it will take to meet the objectives. Prepare a plan or schedule of those processes to measure, and their order of measurement.

8.3.4. Prepare a sample measurement document using the proper measurement technique.

8.3.5. Considering study scope and contract objectives, decide who should attend the workshop to include the functional representatives. For example, an Air Force

study would need a participant from each MAJCOM who has the authority to speak for the MAJCOM. Also needed is a base-level expert who has recent hands-on experience in the work center. The senior functional manager should hand pick the study participants. It's imperative that the right people are selected for the success of the workshop. Always ensure representation while trying to minimize the number of participants.

8.3.6. Decide if any other manpower personnel need to attend the workshop.

8.3.7. After determining what you are going to do in the workshop and who should attend the workshop, prepare a joint formal letter to the respective organizational commanders requesting attendance from the selected individuals. If the selected individuals are not available, select an alternate.

8.3.8. Decide on workshop dates and times. Then prepare a schedule with the dates and times. Keep in mind the overall study time schedule and be flexible.

8.3.9. Set up the workshop logistics (billeting, conference room, etc.).

8.3.10. Prepare a workshop overview package of objectives and pertinent information, and send this package to the workshop participants. Inform the participants they will need to give times and frequencies at the workshop, but not to develop any process times before the workshop. This is done to eliminate potential misunderstandings relative to what's included in each process, and how long the process should take. Provide a "strawman" MEO for the attendees to review. Instruct them to look for other efficiencies and to bring their updated MEO to the workshop.

8.3.11. If sample measurement did not occur during familiarization, the study team and senior functional manager or designated representative should visit 2 - 4 locations and conduct a sample measurement for all processes. This serves two purposes:

8.3.11.1. It allows the study team to make sure the POD is accurate and to collect approximate times and frequencies for each process.

8.3.11.2. It will identify problem areas in the measurement instructions before conducting the workshop.

8.3.12. After sample measurement, make any necessary changes to the measurement package.

8.4. Conducting the Workshop:

8.4.1. There are many different ways to conduct a measurement workshop, and here are just a few ideas or suggestions:

8.4.1.1. Ensure all participants know what the workshop is for and what their responsibilities are.

8.4.1.2. Ensure that each participant knows exactly what's included in each process step before determining a time for it. Clarify any outstanding issues. Reaffirm to them that you are soliciting unbiased, data-oriented estimates; NOT personal opinions.

8.4.1.3. Give each participant a vote or opportunity to give their times and frequencies for a process. To the maximum extent possible, use time estimates and frequencies from validated man-hour and workload collection systems. If you're doing an Air Force study, you might want to have only one vote per MAJCOM (with the base representatives within a MAJCOM deciding on an average time for the MAJCOM) or each location can give individual times and frequencies. Decide how to record the data before the workshop. Regardless of the manner selected, you must make sure the times provided are kept confidential until all representatives have given their estimates. This prevents attendees from influencing each other. This is important because it's the primary means for you to determine variation from representative to representative. This variation is an indicator of areas for efficiencies, or perhaps, unique needs for variance development. Individual times are the preferred method if you are going to regress the data and build a statistical manpower standard. MAJCOM average times are preferred if you're going to build a manpower standard with work unit ratio equations.

8.4.1.4. Ensure that the workshop participants are giving you average times per process step, not the worst case scenario or ideal scenario. Be prepared to calculate weighted step averages, and show the workshop participants how to do this.

8.4.1.5. Ensure the workshop participants prove or validate their step times and frequencies, if necessary.

8.4.1.6. Tell the workshop participants how their step times and frequencies will be used to prepare a manpower standard, and give them an example of what the standard will look like.

8.4.1.7. Reconcile the measurement data, if possible, during the workshop with the senior functional manager.

8.4.2. Attempt to gain study consensus and overall process step times and frequencies agreement before the end of the workshop.

8.5. Benefits of Workshop Measurement:

8.5.1. The major benefit of using workshop measurement is that it reduces the study measurement time from approximately 2 to 3 months to 1 to 2 weeks.

8.5.2. It also eliminates the need for an extensive measurement plan, data adjustments, and data errors since they can be handled during the workshop.

8.5.3. Workshop attendees can identify and quantify (if wanted) MAJCOM variances. This action delivers a more complete manpower picture.

8.5.4. Having the functional representatives involved from the start drastically reduces the staffing of the study final report.

8.5.5. Finally, by utilizing a workshop environment for measurement with our functional customers, we're attempting to build a team with an improved teamwork attitude and approach towards manpower standards.

Hopefully, this will create a synergistic, cooperative environment for the rest of the study.

8.6. Drawbacks of Workshop Measurement:

8.6.1. The major drawback is the TDY costs associated with a workshop. TDY costs must be coordinated and approved by the individual MAJCOM or base. This will impact the number of people attending a workshop.

8.6.2. Another drawback is the scheduling of the workshop. It is sometimes difficult to schedule dates when everyone is available.

8.7. Field Measurement:

8.7.1. While workshop measurement involves bringing together experts from several different sites to do a "centralized" measurement, field measurement is just the opposite. The study team writes a measurement plan. This plan incorporates the MEO initiatives for measurement. The plan is then sent out to a representative sample of locations who conduct measurement using work sampling, operational audit, etc.

8.7.2. Like the workshop measurement, the objective of field measurement is to gather information or process times and frequencies about the work center or function. This information or data is then transferred back to the study team for consolidation with the other inputs.

8.7.3. The field measurement approach may use all measurement techniques, including work sampling and time study.

8.8. Field-Level Input Team Activities:

8.8.1. Each input team and the local functional representative should consider these before beginning measurement:

8.8.1.1. The input team must become familiar with the work center mission, the POD, the measurement technique, and any local peculiarities so that they can accurately convey findings to the study team.

8.8.1.2. The functional representative must ensure the management engineering consultant is provided access to necessary information and that all pertinent information is included in the measurement findings. Also, the local functional representatives are an ideal source for identifying additional efficiencies that may impact the existing MEO.

8.9. Benefits of Field Measurement:

8.9.1. The field teams would be able to do follow-on data review once analysis begins. Whereas with the workshop method, once the participants leave, it may be difficult to get the consensus of all attendees on issues raised during limited test measurement.

8.9.2. Scheduling becomes less of an issue as there is little or no TDY travel involved. This means the functional representatives are still in their work centers and are able to control its activities while helping in providing measurement data.

8.9.3. The field-level MEP consultant would have access to all levels of the work force to get a very detailed assessment of the work center's activities. This is an advantage over the workshop method that limits the number of functional personnel attending due to space and monetary considerations.

8.10. Drawbacks of Field Measurement:

8.10.1. The major drawback to using field measurement is that it increases the study measurement time from approximately one-two weeks to two-three months.

8.10.2. Due to the number of personnel involved, the probability for data errors (corrections and adjustments) increases, further slowing the process, and introduces more variation into the data.

8.10.3. When using "same eyes" measurement approach, the cost of performing measurement due to TDY travel is significantly increased.

8.10.4. Another drawback of field measurement is the lack of management engineering (ME) resources in the field. This includes most installation wing manpower offices. There will be very limited opportunities for field measurement by ME input teams.

Chapter 9

STANDARDS FOR WARTIME PLANNING AND EXECUTION

Section A--Wartime Manpower Standards Instructions

9.1. General Concepts. Developing manpower standards that address functional wartime planning and execution responsibilities is an integral part of the process oriented review process.

9.1.1. While AFMSs have traditionally dealt with a single environment (peacetime), consider different operational threats and theaters when manpower standards are being developed. AFMSs that apply to wartime operations are divided into three categories: CONUS end with an A suffix (e.g., AFMS W108AA), combat area-applicable end with a B suffix (e.g., AFMS W108AB), and those applying to both end with a C suffix (e.g., AFMS W108AC).

9.1.2. There are many unknowns involved with predicting a wartime environment. Therefore, it is not feasible to expect or achieve the same level of accuracy as peacetime standards. There are no statistical needs for wartime equations. This places an additional burden on the study team because they cannot rely on statistical tests to choose the best equation or workload factor. Wartime equations must pass a common sense (logic) test and be fully defensible. The collection of measurement data by multiple means becomes significant. For example, if data is collected using operational audit techniques, attempt some form of time measurement at an exercise to verify a portion of the data.

9.1.3. The fact that one MAJCOM typically impacts support of other MAJCOMs complicates the need for rational and logical development of manpower standards. For example, a CONUS command may increase the CONUS residual Civil Engineering manpower standard requirements and cause decisions to withhold needed Civil Engineering deployments in support of an overseas MAJCOM. Since one command can directly or indirectly impact another, the study team must understand all of the wartime interrelationships between organizations. The statistical accuracy differences and inter-command impacts

may change the staffing process from peacetime AFMS staffing.

9.1.4. Use manpower standards with wartime applicability to estimate the required wartime size of the Air Force. Specifically, determine wartime manpower requirements for base-level in-place and total wartime employment for either contingencies or exercises, and for both surge and sustainment operations. AFI 38-205, describes the Air Force wartime manpower planning and programming process. Also use manpower standards to determine capabilities. That is, determining how many units of production can available resources support (i.e., solving for X (workload) instead of Y (manpower)).

9.1.5. To reduce costs associated with getting security clearances and to minimize the need for access to classified data, each MAJCOM M&O should consider appointing a single point of contact for wartime studies.

9.2. Process Oriented Review Objectives. A corollary objective of the process oriented review process is to develop manpower standards that estimate quantities of manpower needed for contingencies and exercises during both surge and sustainment operations. Use the completed manpower standard to define in-place wartime requirements, check the adequacy of deployment teams (that is, UTCs), and evaluate the proper utilization of UTCs in war plans.

9.3. Study Sequence:

9.3.1. Preparation for a wartime study is necessary to set up the foundation for the study and ensure success. Research includes a review of previous contingency involvement so that wartime mission statements can be refined. A major objective is the development of a draft Process Oriented Description (POD) and the approval of the study contract.

- 9.3.2. Quantification is the core of any wartime modeling effort. Measurements and estimates are made and the wartime model is developed.
- 9.3.3. Staff with impacted agencies to gain approval.

Section B--Wartime Manpower Standard Procedures

9.4. Study Preparation:

- 9.4.1. **Study Purpose.** The study team works together with the functional OPR to plan the course of the study, review and analyze wartime functional guidance, develop the wartime POD, and develop the study contract (see table 9.1).
- 9.4.2. **Announcement Letter.** The study team and functional area POC develop a joint announcement letter. This letter is co-signed by the senior manpower representative and the functional OPR. It outlines the need for sufficient wartime functional guidance, accurate POD development, and to base development of manpower standards on the most effective concepts of operation and organization. Also, the letter states that mutual cooperation of the manpower and functional OPR community is essential to the successful completion of the study.
- 9.4.3. **Wartime Functional Guidance Review.** A critical element in developing accurate manpower standards is the quality of available wartime functional guidance. Because there is usually no ongoing war or conflict available for measurement of steps being done by the function or for collection of workload, the study team must rely heavily on existing wartime planning guidance located in various documents. Therefore, the study team must research and analyze all applicable wartime functional guidance during this phase. The functional guidance review serves as the foundation for constructing the process oriented review.
 - 9.4.3.1. Early in the study, the study team determines if wartime functional guidance is available at its level. The team determines if locally available guidance describes the taskings that must be done during contingencies. Besides functional publications, the team reviews base level plans, CONUS base-use plan (CBUP), base support, reception, and mobilization plans, and local operating instructions (OI) used during contingencies or readiness inspections. Observing exercises is another way the study team can familiarize itself with functional activities. The team should also request local guidance reviews from other METs within the MAJCOM who have similar operations. See figure 9.1 for sample functional guidance review questions.
 - 9.4.3.2. If the study team finds that inadequate documentation exists for determining functional taskings, it sends a request for additional guidance to the parent headquarters. The parent headquarters management engineering staff gets help from the pertinent functional

- OPRs. The MAJCOM M&O and HQ AFMEA can accomplish this faster than the local base level manpower offices because they have access to MAJCOM plans and common US Air Force planning documents, e.g., the War Mobilization Plan (WMP). The MAJCOM management engineering staff also has access to their functional counterparts. Since these personnel are the key customers of the manpower standard, they should be able to outline their wartime concepts of operation. MAJCOMs give the information to the base level manpower office to construct a wartime POD.
- 9.4.3.3. If the MAJCOM management engineering staff cannot determine the key operational concepts needed to draft a POD, they send a report of their efforts to HQ AFMEA. HQ AFMEA will research the function in question (including other MAJCOMs functional guidance and OIs), investigate historical records, and develop the necessary guidance. HQ AFMEA sends the MAJCOM or study team an outline of findings, and if needed, identify additional areas of research to be conducted at the MAJCOM or base level. The study team constructs a wartime POD based on the gathered data, functional OPR expertise, and common sense.
- 9.4.4. **Wartime Standard Planning Considerations.** Study teams and functional OPRs must consider the type of locations (CONUS non-combat and overseas combat), the types of environments (surge and sustained), the potential for consolidating work centers (for ease of application), and contingency-only work centers (those that do not exist during peacetime). Together they plan to construct wartime standards that are applicable to the maximum number of locations and environments. While this is an ideal objective, some process oriented reviews may need limiting the scope by type of location or environment. This applicability by type of location and environment depends on the nature of the work center, its wartime mission, and operations plans (OPlan) it supports:
 - 9.4.4.1. **Wartime Locations in the CONUS.** Many MAJCOM manpower standards may address steps that are done only in the CONUS (wartime AFMS suffix A). However, for any global conflict, plans must address hostile attacks on CONUS installations, although CONUS locations are considered non-combat areas. For CONUS manpower standard development, the study team must NOT assume that there is little difference between surge and sustainment (or other applicable) environments. The study team must review all applicable guidance to determine the unique needs of each phase (such as mobility processing, aerial ports and staging areas, non-combatant evacuation operation (NEO) reception, etc.) and construct manpower standards that apply to all environments.

Table 9.1. Wartime Manpower Standards Study Activities.				
A		B	C	D
C	A			

T I V I T Y	P H A S E	ACTION AGENCIES		DESCRIPTION	DOCUMENTATION	
		AIR FORCE STUDIES	MAJCOM STUDIES			
1	P R E L I M I N A R Y	Study Team	Study Team	Develop joint announcement letter	Joint announcement letter	
		AF Functional OPR	MAJCOM Functional OPR	Make review announcement	- Joint Letter	
		AF/PE	MAJCOM M&O		- Scheduling Action	
2		Study Team	Study Team	Review wartime functional guidance: - WMP - CBUP - JSP - OPlans - Theater CONOPS - Functions Instructions - OIs	Assessment: - Draft WCD - Executive Summary - Potential WLFs - Identify peak wartime tasking period	
		AF Functional OPR	MAJCOM Functional OPR			
3		Study Team	Study Team	Develop study contract	- Signed study contract - Scope/Objectives - Output products - Data collection - Plan/Schedule - Responsibilities - Proposed staffing	
		AF Functional OPR	MAJCOM Functional OPR			
			MAJCOM M&O			
4		Q U A N T I F I	Study Team	Study Team	Perform data collection: - Wartime WCD - Work measurement (when required) - CONOPs validation - PWLF validation - Exercise - Evaluations Review	- UTC analysis - Data summaries - Functional support matrix - Spread sheets - Organizational tables (optional)
			Functional OPR	Functional OPR		
			Input Team (if used)	Input Team (if used)	Identify alternate data sources	
5		C A T I O N	Study Team	Study Team	Degradation factor analysis	SOC
AF Functional OPR			MAJCOM Functional OPR			
Study Team	Study Team		Accomplish standard development and prepare final report - Task analysis - Equation development - Manpower tables - AFSC alternatives - Augmentation mix	WMS Report - Manpower Standard - Analysis and Computations - Impact Statement - WMP input - Support Table - UTC Guidance - Technical Exhibits		
7	AFMEA	MAJCOM M&O	Accomplish quality validation review	Comments and correction instructions		
8	S T A F F I N G	Study Team	Study Team	Standard impact analysis	Corrected WMS staffing and impact report and comments	
		MAJCOM Functional OPR	MAJCOM M&O			
		AF Functional OPR	MAJCOM Functional OPR			
9	Study Team	Study Team	Staff with: (Command and Air Force studies) - MAJCOM and AF Functional OPRs - MAJCOM and AF Supporting OPRs - MAJCOM and AF Supported OPRs - HQ USAF/PE	Completed, coordinated and approved study report		
	AFMEA	MAJCOM M&O				
10				Publish standard	WMS Wartime AFMS	

Figure 9.1. Wartime Functional Guidance Review Questions.

SAMPLE FUNCTIONAL GUIDANCE REVIEW QUESTIONS	
1.	Does the peacetime work center continue to function as an independent entity; or is it eliminated, merged with another, or modified in size/mission scope?
2.	Are peacetime steps continued or changed in nature and frequency?
3.	Are there workloads that will not be performed?
4.	Are there activities that are only performed in wartime?
5.	Are there portions of USAF WMP-1 (or MAJCOM equivalents) guidance that does not apply to particular bases/locations?
6.	Are there known responsibilities/workloads that are not in the USAF WMP-1 (or MAJCOM equivalents) that should be included?
7.	Which areas of taskings need further definition?
8.	Are wartime taskings exercised during readiness inspections?
9.	Are resources available to support functional activities in wartime conditions (e.g. dedicated communications, uninterrupted power sources, etc.)? If not, do alternative resources exist?
10.	Do the workloads/taskings apply in all environments (e.g., CONUS/theater, sanctuaries, attack conditions)?
11.	Are there related work centers that can be consolidated for manpower determinant application for either planning or execution purposes?
12.	Are there related work centers that exist during contingencies or exercises?
13.	Can any of the wartime activities be accomplished by minimally skilled or unskilled personnel?

9.4.4.2. **Wartime Locations in the Combat Theater.** For many activities within a combat theater (wartime AFMS suffix B), there may be a need to address the surge and sustained environments in separate manpower standards. These environments are driven largely by the impacts of the threat. The surge environment is the period when hostilities are likely to cause a significant impairment to work center mission, operations, and activities (for

example, utilities and communications). The sustained environment is the period when the impacts of attacks on installations will be less severe, though still present.

9.4.4.3. **Alternatives.** An alternative to addressing separate locations and environments is to develop a single standard with modules to incorporate all environments. In this case, the study team must account for the differences in the environments. See figure 9.2 on how to do this.

Figure 9.2. Equation Computation by Conflict Period and Location.

TIME PHASING/ENVIRONMENTAL CONSIDERATIONS	
POD PROCESS ANNOTATIONS:	
PROCESS	DESCRIPTION
1.1.	Rebuild thermo-plastic nozzles for all installations (surge level = 40%, sustained level = 100%)
2.3.	Maintain muffler bearing system (surge level = 100%, sustained level = 20%)
STANDARD EQUATION MODULE:	
Example: Surge requires 20% less effort.	
$Y(\text{sustained}) = a + bx = 100 + 40X$	
$Y(\text{surge}) = (a + bx)d$, where "d" is the period of conflict off-set at 1-% less effort. For example:	
$d = 1 - .20 = .80$.	
$Y(\text{surge}) = (100 + 40X).80 = 80 + 32X$	

9.4.5. Developing a Wartime Process Oriented Description (POD). The analysis of the wartime functional guidance, and locations and environments leads to preparing the wartime POD.

9.4.5.1. The most convenient way to begin is by analyzing the peacetime POD that exists for the function. The study team reviews each step with the functional OPR to determine the steps done in wartime. Separate steps into two groups: surge and sustain. Also add to the POD those steps that will be done only in wartime. Differentiate on the POD by the use of parenthesis. For example: (surge 10%, sustained 100%).

9.4.5.2. In some instances, it is necessary to develop a wartime POD without a peacetime equivalent. However, steps in a wartime POD can be defined in broader terms, since measurement of wartime activities is not subject to the same rigor and accuracy needs as a peacetime standard.

9.4.5.3. Address the definition of the work center from a wartime perspective. In many instances, the study team will find that during contingency operations the organizational structure can be further streamlined, and many peacetime work centers can be combined.

9.4.5.4. When developing the POD, question all wartime steps to make sure that only needed steps are included. Challenge workloads and taskings if they appear to lack logic or direction or appear to be self-serving. Also, keep in mind the desirability of reducing wartime work steps and associated workloads. During contingencies, there is always additional work that must be done to ensure mission accomplishment; but by reducing the work steps and consequently workload demands on a function's manpower resources, two positive results can be realized. One, if the work center has a great wartime demand for personnel, reduce the need for augmentees. Two, if the work center's workload can be reduced to a point where it has enough or surplus personnel to satisfy the wartime requirement, then establish an additional source of augmentees. Critically examine wartime steps from three standpoints:

9.4.5.4.1. **Step Essentiality.** Is the step or output that is being done, essential for wartime operations? Who is the customer for this work? If there is no specific request for the service or product during a readiness inspection, the step may not be essential.

9.4.5.4.2. **Functional Duplication.** Does the step duplicate another function's taskings? Carefully examine each step to make sure that each function's work is independent.

9.4.5.4.3. **Scenario Inconsistencies.** Does the step align with the expected wartime environment? Yearly, AFMEA will furnish the MAJCOMs with a classified scenario matrix detailing the expected environment in times of conflict and how that environment will impact common resources such as electrical power and communications. The MAJCOM wartime point of contact furnishes this

data to their field units as required, allowing the analyst to review the proposed steps against the approved scenario.

9.4.5.5. Before continuing with the study, study teams and functional OPRs resolve all substantive issues dealing with wartime steps included or excluded from the wartime POD.

9.4.6. The Purpose of a Study Contract. Each wartime standard has individual characteristics. Some may combine various work centers, others may be developed for specific applications outside of normal programming and planning arenas. The study contract precisely defines the scope of the study and sets up milestones. When approved, the study contract becomes the road map for developing the wartime standard.

9.4.7. Developing the Study Contract. Though wartime studies vary in composition, most study contracts include:

9.4.7.1. Study objectives.

9.4.7.2. Responsibilities of all participants.

9.4.7.3. Desired completion dates.

9.4.7.4. A measurement and analysis outline including proposed input locations and the suggested composition of the final standard (for example, what time periods of the war will it apply to).

9.4.7.5. Proposed outputs of the study include:

9.4.7.5.1. Publication of the manpower standard.

9.4.7.5.2. Preparation of an algorithm with application instructions or POD extract for inclusion in MAJCOM plans, the US Air Force WMP, or other war planning documents.

9.4.7.5.3. A review and restructure of the OPR's individual mobilization augmentee (IMA) program based on the application of the manpower equation.

9.4.7.5.4. A computerized application system for use by the OPR and planning community.

9.4.7.5.5. Review or development of the UTC (according to AFI 38-205).

9.4.7.6. Documentation of the resolution of issues sent in the wartime POD issue memorandum.

9.5. The Quantification Process:

9.5.1. Wartime Quantification Concept. The primary uses of manpower standards that apply to a wartime environment are wartime force sizing, UTC development or update, computing contingency manpower requirements, and wartime manpower validation. Peacetime and wartime use of manpower standards may be different. This is due to several factors that include measurement data differences and application differences. First, the data collected to build the manpower equation may be of an extremely limited sample size. Second, use the standard only to size wartime force packages, not to earn or validate manpower spaces. Despite these differences, the study team should strive for the most accurate model that can be produced.

9.5.2. Measurement and Data Collection Sources. Study teams can get measurement and data collection from various sources including:

9.5.2.1. Exercises Data:

9.5.2.1.1. Exercises are an excellent measurement and data collection source, if desired activities occur and measurable events are observable. Exercises vary in composition. While many exercises involve deployments to isolated locations, most are local or MAJCOM produced tests of operational capability. Finding a suitable exercise is usually not difficult because most bases exercise monthly or quarterly. To make sure the exercise mirrors the programmed wartime scenario and functional concept of operation (CONOP), all measurement teams keep a close liaison or membership with the Exercise Control Team (ECT), Exercise Evaluation Team (EET), or Base Exercise Evaluation Team (BEET). When an exercise is used, make sure that the context of the measurement is within the desired scenario guidelines. Even though an exercise may not give perfect conditions to simulate a wartime environment with all its uncertainties, exercise participation can allow the determination of step times and workload relationships. Use these step times in constructing a unit time data base for standard work center steps.

9.5.2.1.2. The manpower consultant needs to keep in mind the number of personnel and equipment used in the exercise is frequently a scaled-down version of a standard UTC. During a typical deployment exercise such as Red Flag, the flying and maintenance squadrons do not exercise a "standard" package. For exercises, the UTC is normally tailored because of expertise already in place and budget limitations, yet OPlan taskings are built around a standard UTC with predefined equipment.

9.5.2.2. Peacetime Data. Use peacetime standard development data of a function to develop wartime equations. When work unit, step times, and specific processes or steps of work do not change significantly in wartime but frequency of occurrence does, this data is excellent for wartime standard development. Adjustments to the measurement data can include changes to output volume, rate of occurrence (frequency), process or step groupings, and deletion of whole processes or step groupings that occur in peacetime only. By using PODs for respective threat periods, the study team can determine the man-hours associated with specific wartime concepts of operations and threat.

9.5.2.3. Other Estimates. Estimates are similar to data from operational audits except they may be much less detailed and come from a broader range of sources. Estimates can come from sources such as research and development, training, and simulation modeling activities. The verification process may not be as strict as that for peacetime measurement data, but the most complete verification possible and analysis of the data will strengthen its credibility. Estimates are sometimes the

only source of data for activities and steps that do not occur with any frequency during peacetime or are done quite differently in wartime. Some specific sources for estimates include research reports, medical centers, training bases and centers, civilian activities (similar functions), historical data, interviews with experienced functional personnel, and test and evaluation activities.

9.5.3. Measurement Methods and Techniques. Use many of the common data measurement methods and techniques for manpower standards developed through PORs to measure and gather wartime workload and unit time data. However, due to the qualified nature of the workload and work unit time data, existing techniques must often be modified. Use these methods and techniques as a starting point for wartime manpower measurement and data collection. Don't restrict the development and use of other techniques that may be more responsive to study needs.

9.5.3.1. Operational Audit (OA). The various forms of OA may often be the desirable data collection tool. The good operator technique can give unit times tailored to the specific methodology found in wartime.

9.5.3.2. Wartime Job and Task Standards. Develop and use wartime job standards to construct composite activity per accomplishment times (PAT) used for manpower standards and UTCs. Keep them as a reference data base for future studies. When using this technique, consider combining PATs for wartime activities into a step group.

9.5.3.3. Work Sampling (WS). Be versatile when planning WS measurements. Change the method to measure the desired characteristics at any level of effort. For example, measurement can include AFSC use, process or step percentage of occurrence, skill level or type of resource used (for example, the use of augmentees), selective steps, and work processes. The ability to gather large amounts of information in a small time frame makes WS a valuable tool to use during exercises. See AFMAN 38-208, volume 2, chapter 15, for more information on work sampling measurements.

9.5.3.4. Other Methods. Use other methods that are built on a management engineering foundation that will allow study goals to be met. Study teams must work closely with their MAJCOM wartime point of contact to determine if there are any existing data bases that can be used to supplement or replace measurement efforts. Since existing wartime manpower requirements are often built on subjective estimates, virtually any management engineering method that will add objectivity into wartime manpower assessments can be used. Some of these techniques are: simulation, flow processing, and staffing patterns.

9.5.4. Equation and Model Development. When possible, develop wartime standards in the same manner as peacetime standards. Emphasize these areas: ease of modification and use of WLFs that are programmable and easy to get.

9.5.4.1. When possible, construct the manpower standards in a fashion to allow for follow-on adjustments due to conceptual or scenario changes. When feasible, algebraically combine linear bivariate equations for use in planning guidance (for example, the WMP) to simplify application. An example of this is the combination of all Civil Engineering work center equations into one equation that gives the total number of civil engineers needed for the entire location. The published manpower standard should include both the original equation with all of its modules and the combined version.

9.5.4.2. Use only programmable WLFs. Do not use historical counts or forms or reports that might not be available in crisis situations. Commonly available programmable WLFs include aircraft, personnel, and sorties.

9.5.5. **Degradation Factors.** Use degradation factors to show the impact of specific conditions affecting work center operational effectiveness and capability. Degradation factors serve as a "price-tagging" tool for developing capability and work force management options. In some cases, an OPR may request that a degradation factor be developed to show the impacts of hostile actions on a work centers operations. For instance, the lack of electrical power may cause the work center to resort to manual processing of data since its computers will not work. In cases where the OPR requests this data, the study team must work closely with its wartime point of contact to make sure that all the most recent intelligence estimates are used and that any resulting degradation factor is properly determined. Degradation factors will not be applied against standby time.

9.5.6. **Wartime Manpower Tables.** Construct

manpower tables the same as for peacetime. Remember, in wartime, many steps and functions will be labor intensive and will not need fully trained 3, 5, and 7 level AFSCs. Make sure tables show skill or AFSC alternatives from data measurements and analysis as follows:

9.5.6.1. Show requirements for unskilled personnel in wartime manpower tables by listing them as an AFSC 9T000 (unspecified airman). This requirement shows the need for an untrained augmentee to do selected work. Examples of work done by untrained personnel are: sweeping rubble from taxiways, functioning as a litter bearer, and being a messenger or courier.

9.5.6.2. Show requirements for minimally trained personnel in wartime manpower tables by listing them as 1-level authorizations. This requirement shows the need for a person who has received a level of training needed to do a specific step or an individual mission. The level of training received by a 1-level can be done by base level functional personnel through specific augmentation programs. Examples of work done by a semi-skilled, minimally trained person are: an explosives ordnance disposal (EOD) team as a helper or serving as a shelter manager.

9.5.7. **Wartime Study Report Alternatives.** The study report signals the end of quantification. This report has most of the information shown in figure 9.3. When completed, send the report to the parent management headquarters for review and staffing. Figure 9.4 shows an example of a published wartime AFMS.

9.6. Study Staffing and Approval. Staffing and approval of manpower standards is done according to AFI 38-201. In addition, coordination staffing must include all players (one command that supports another) to be complete

Figure 9.3. Study Report Format.

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Development Locations (Optional)
Study Period
Study Participants
Reference Documentation
General Comments
Follow-on Actions
Part Two - Wartime (Air Force or Command) Manpower Standard
Objective
Authority
Applicability

(Figure continued on next page)

Figure 9.3. Continued.

Standard Data
Application Instructions
Summary of Conditions or Scenario
Process Oriented Description
Standard Manpower Table
Part Three - Data Analysis and Computation
Data Collection
Data Analysis
Data Exclusions
Data Adjustments
Computations Summary
AFSC and Grade Determination
Part Four - Impact Statement
WMD Application
Previous MANREQ/FORSIZE Application
Application Differences (WMD application versus Previous MANREQ/FORSIZE Application)
UTCs Impacted
Part Five - USAF War and Mobilization Plan (WMP)
Input (Optional)
UTC Guidance (Optional)
Part Six - Wartime Integrated Support Table (Optional)
(This is similar to a wartime AFI 25-201 host-tenant agreement listing the support the function requires from other work centers)

Figure 9.4. Wartime AFMS Example.

DEPARTMENT OF THE AIR FORCE	AFMS
W542XA	
Headquarters US Air Force	
Washington DC 20330-5000	20
February 1987	
CONUS WARTIME	
BASE DENTAL CLINIC AND BASE DENTAL LABORATORY	
1. Objective. This AFMS quantifies the manpower required to accomplish the tasks described in the process oriented description for varying levels of workload volume.	
2. Authority. The 160, 162, and 168 series of Air Force regulations and WMP-1 contain USAF policy and procedural guidance for the CONUS Dental clinic and Base Dental Laboratory work centers. This AFMS was developed in accordance with procedures contained in AFMAN 38-208.	

(Figure continued on next page)

Figure 9.4. Continued.

<p>3. Applicability. Applies to all CONUS active duty and ANG medical facilities authorized FACs 5421 and 5422 except Lackland AFB. This standard applies only to wartime workload in the combined FAC W542XA. It does not include workload performed at Casualty Treatment Hospitals.</p> <p>4. Standard Data:</p> <p>4.1. Approval Data. May 1986</p> <p>4.2. Man-Hour Data Source. Man-hour estimates</p> <p>4.3. Standard Man-Hour Equation. $Y = 270.4 + .7706X$</p> <p>4.4. Workload Factor:</p> <p>4.4.1. Title. Projected Base Population</p> <p>4.4.2. Definition. Projected base military active duty population at day M+90.</p> <p>4.4.3. Source. CONUS Base Use Plan, MANREQ results, Base Support Plan, or MAJCOM Base Level Assessment, whichever best defines the base sustaining and residual population at day M+90.</p> <p>4.5. Study Team:</p> <p>4.5.1. Manpower OPR.</p> <p>4.5.2. Functional Representative.</p> <p>5. Application Instructions. Apply this AFMS during Wartime Manpower Planning Exercise. Use this AFMS for Base Level Contingency Planning. Some dental clinics have separate operating locations with workload reported on separate Base Dental Services Reports (DSR). Price-out these locations as separate facilities.</p> <p>6. Statement of Conditions. This standard addresses wartime sustaining environment for CONUS locations with services dedicated only to active duty military personnel under a radiation-free environment, since dental services cannot be effectively performed while wearing protective gear or clothing. It contains no degradation factors and assumes availability of uninterrupted utilities.</p> <p>PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE</p>	
	<p>2 Atch</p> <p>1. Process Oriented Description</p> <p>2. Standard Manpower Table</p>
<p>No. of Printed Pages: 7</p> <p>OPR: HQ AFMEA/PLDM</p> <p>OCR: AFMEDMET</p> <p>Distribution: F</p>	

Chapter 10

PROCESS ORIENTED DESCRIPTION (POD)

10.1. General Concepts. The POD is a full description of processes that are the responsibility of the work center. A process is a series of value added actions that bring about an end or result. If a POD was developed during an MEO study, the POD may only need a review for standard development purposes. However, if a POD is not available, develop one from the process analysis worksheets, mission statement, or other documents that define work requirements. The POD is the basic building block of a standard and is written to facilitate work measurement, and data analysis and computations. Functional characteristics, such as complexity, stability, and degree of standardization, influence the level of POD detail, the

selection of the measurement approach, and the ultimate maintenance of the standard.

10.2. Definition of Work Center Process Steps. Make sure POD content reflects only mission essential processes assigned to the work center being studied. Omit assumed or inferred workload. Inferred work is the responsibility of another work center or function. Assumed work is not necessary for mission completion. To build a good POD, develop an accurate and understandable definition for each process step.

10.2.1. A process is a discrete segment of work activity that represents a composite of methods, procedures, and

techniques needed to accomplish one unit of work activity (output). It is a procedure with a definitive input and output product. The output automatically becomes tagging" work center outputs, and permits the work unit for that process. This facilitates "price identification and examination of various level of service options. A process involves worker interaction with such things as equipment, material, other people, and information. In most instances, the performance of a process by a worker has a definite beginning and end. The whole activity needs a mixture of decisions, perceptions, and physical actions.

10.2.2. A process definition may only need a short phrase (for example, repairs carburetor), or it may need a breakout of the process into several steps (for example, disassembles carburetor, replaces part, reassembles carburetor, and inspects carburetor). Factors that influence the degree of definition detail needed are:

10.2.2.1. The Nature of the Activity:

10.2.2.1.1. A detailed process definition is suitable when an operation is highly repetitive and a specific sequence of steps must be followed.

10.2.2.1.2. A less detailed listing of a process is suitable when a process can be done in a variety of ways. For example, management, research, and problem-solving activities may follow different steps each time they are done; therefore, they can only be described in general terms.

10.2.2.1.3. Structure processes so they are independent and mutually exclusive of each other and have definite start and stop points.

10.2.2.2. The Measurement Method Selected: 10.2.2.2.1. Measurement methods such as operational audit or time study usually need processes defined at the step level to ensure accuracy of data.

10.2.2.2.2. For work sampling, the sampling level dictates the degree of detail needed. If sampling is done at the process level, a listing of step titles or a grouping of the steps in sentence format may provide enough detail for measurement.

10.2.2.2.3. In all cases, clearly write process definitions in enough detail so the measuring craftsman can easily identify when an activity occurs during measurement.

10.2.3. Setting up the correct process definition detail is a repetitive procedure requiring the management engineer to use good judgment and common sense. Each work center produces different definition requirements that must be addressed to obtain accurate data. During this procedure, remember:

10.2.3.1. Steps made purposely broad to cover as much work as possible can increase interpretation problems, cause inaccurate measurement, and hinder data analysis.

10.2.3.2. Steps that do not accurately reflect duties and responsibilities increase the chance for inaccurate measurement.

10.2.3.3. Steps that are too detailed may result in an indiscernible sequence of events.

10.3. Classifying Work Center Activities. When analyzing individual work center activities, decide if they are productive, nonavailable, assumed work, or not allowed. Use table 10.1, part I, to do this analysis.

Table 10.1. How To Classify Work.

I. Classifying Direct Work.

[illegible]

(Table Continued on next page)

Table 10.1. Continued.

II. Classifying Indirect Work as Direct Work

R U L E	A	B	C		D	E	F (Notes)
	If work is performed in support of the work center or personnel assigned to the work center being measured	If the work center is an overhead work center and the work is performed in support of a subordinate work center or personnel assigned to a subordinate work center	If the work center is an overhead work center and the work is performed in support of the work center or personnel assigned to the overhead work center being measured		Indirect (See Note 1)	Direct (See Note 2)	1. Use appropriate indirect task description from AFMS 00AA. 2. Use appropriate indirect task description from AFMS 00AA. as direct work. Management or overhead work centers can have direct processes which describe indirect work when it's performed in support of personnel in subordinate work centers can have direct processes which describe indirect work when it's performed in support of personnel in subordinate work centers. This is in addition to the standard indirect categories to support people inside the overhead work center. IN ALL CASES, ensure the "same" work is not counted twice.
1	Yes				X		
2		Yes				X	
3			Yes		X		

10.3.1. AFMS 00AA lists those tasks and categories that have been identified as the standard indirect categories. See table 10.1, part II, for additional guidance.

10.3.2. Proper accountability of certain processes and steps may be confusing or difficult. See table 10.2 for rules on how to handle these.

Table 10.2. How To Treat Special Work Requirements.			
R U L E	A	B	C
	If the work to be classified is	and includes	then
1	Flying Requirements	flying to accomplish the work center mission and to satisfy the requirements of Flying Position Identifier (FPI) 1,2,5,6, or 8.	identify steps related to and conducting flying mission, training, or evaluation in a direct process titled "(type Aircraft) Flying Activities." Include steps required to satisfy all currency requirements.
2		currency requirements associated with FPI 3 and 4 coded positions,	consider the steps credited in the SIAM or MAF.
3	Travel	travel between work centers, travel from the work center to the job site, or TDY travel with the purpose of doing official mission-oriented direct process work,	If travel is required to accomplish a direct process, establish a step in the process for travel. If travel is required to do two or more steps in the same direct process, establish a separate step for each time travel is performed (see note 1).
4	Supervision (see note 2)	managing two or more subordinate work centers,	establish a process called "Management" that contains those steps necessary to support subordinate work centers.
5		supervising only internal work center personnel,	consider tasks credited in the SIAM for OA studies.
6	On-the-job training (OJT)	accomplishing direct work while receiving OJT,	credit this work to the direct process done.

(Table continued on next page)

Table 10.2. Continued.

7		receiving in-house proficiency training or qualification training in a classroom environment in lieu of numerous individual OJT sessions on one subject,	consider tasks credited in the SIAM for OA studies.
8		receiving FTD or MDT instructions when the training is of a recurring nature similar to, or in lieu of, normal OJT or proficiency training,	
9		study of career development course (CDC) and Weighted Airman Promotion System (WAPS) during normal duty hours,	consider as nonproductive unless used in conjunction with rule 6 or 7.
10	Cleanup	performing clean-up services not authorized for custodial service,	consider tasks credited in the SIAM for OA studies.
11		mowing grass, (see note 3)	give no credit because this is considered loaned time.

NOTES:

1. Ensure credit for travel is not double-counted in the steps or processes identified. When the modular equation or process oriented approach is used, split travel between the appropriate modules or processes.

2. Indirect tasks can be reflected as both direct or indirect in Management or overhead work centers. However, when documented as direct work, the processes reflect steps to support personnel in subordinate work centers while the indirect categories reflect steps to support people inside the overhead work center. Ensure that direct processes are written clearly and do not duplicate indirect work described in AFMS 00AA.

3. There may be other duties performed by work center personnel, i.e., snow/ice removal, that may or may not be creditable to the work center. In all cases, use the decision logic table (table 10.1) to determine how this work should be classified.

10.4. Nonavailable Work Center Activities:

10.4.1. When identifying and defining processes done in a work center, there are activities that are directed, approved, or recognized by the Air Force that make people unavailable for assigned primary processes. Since these activities have an impact on all work centers, they have been measured Air Force-wide and subtracted from each person's assigned time to produce the man-hour availability factors (MAF). MAFs are listed in AFI 38-201.

10.4.2. The major groupings of nonavailable activities for military personnel are leave, permanent change of station (PCS)-related, medical, organizational duties, education and training, and miscellaneous. Specific definitions of each follow:

10.4.2.1. **Leave.** An approved absence from work or duty for a specified period of time. It does not include leave taken in conjunction with a PCS move or convalescent leave. Personnel on leave in conjunction with a PCS move are assigned against authorizations in the Air Force Transient Account.

10.4.2.2. **PCS-Related.** Activities done by personnel because of a PCS move. This includes in and out processing through base agencies such as military personnel flight (MPF), Accounting and Finance, Transportation, Officer or NCO Club, Base Housing, Supply, Library, Mail Room, and others as established by MAJCOM or base publications. PCS-related also includes

activities needed for family settlement and authorized shipment of privately owned vehicle (POV). It does not include travel and leave taken in connection with the PCS move. Personnel on leave or traveling in conjunction with a PCS move are assigned against authorizations in the Air Force Transient Account.

10.4.2.3. **Medical.** An approved absence from duty for medical reasons such as pregnancy of the military member, inpatient and quarters stays, outpatient visits, physicals, dental visits, and convalescent leave.

10.4.2.4. **Organizational Duties.** Activities such as:

10.4.2.4.1. **Aerobics.** Includes testing and weighing in but not physical training to prepare for testing.

10.4.2.4.2. **Counseling and Reviews.** Includes receiving directed personal affairs counseling, obtaining career information and counseling from MPF, and performing directed personnel record reviews. It also includes overseas pre-rotational forecast briefings.

10.4.2.4.3. **Boards and Councils.** Includes time spent preparing for and appearing before boards and councils. Recognition, advisory, evaluation, motivation, and disciplinary boards or councils are included in this group.

10.4.2.4.4. **Sponsor and INTRO Program.** Includes time spent away from the primary work location for performing in-unit sponsor or Individualized Newcomer Treatment and Orientation (INTRO) Program duties (excludes job-related hours).

10.4.2.4.5. **Additional Duties.** Includes board or group members (i.e., Base Advisory Council, Base Steering Group, and Boards of Inquiry); program manager, monitor, or coordinator (i.e., athletic monitor, budget monitor, disaster preparedness monitor, and OJT monitor); and Details (i.e., bay orderly and base clean up.) Also included is compensatory time-off during regular duty hours for performing details during off-duty hours.

10.4.2.5. **Education and Training.** Activities such as:

10.4.2.5.1. **Testing.** Examples are promotion fitness exam, specialty knowledge tests, USAF supervisory exam, ECI exams, college-level equivalency program exams, CDC final exams, etc.

10.4.2.5.2. **Ancillary Training.** Some courses listed in AFI 36-2202. Courses allowed include, Explosive Ordinance Recognition Training (EORT), Self-Aid and Buddy Care, Local Conditions Course II, Supervisor's Safety Training, Protection from Terrorism, Reporting and Countering the Human Resource Intelligence Threat, Uniform Code of Military Justice (UCMJ), First Duty Station Orientation, Communications Security (COMSEC), Operations Security (OPSEC), Base Populace, and Overseas Orientation Briefing.

10.4.2.5.3. **TDY Technical Training.** Courses of 20 weeks duration or less identified in AFR 50-5.

10.4.2.5.4. **Professional Military Education (PME).** Officer PME consists of Squadron Officer School only. Enlisted PME consists of Airman Leadership School, NCO Academy, and Senior NCO Academy.

10.4.2.5.5. **Air Force Institute of Technology (AFIT) or Air University (AU) Training.** Includes training time associated with AFIT or AU short courses less than 20 weeks in duration. Examples are the leadership and management development courses and the AFIT systems and logistics courses.

10.4.2.6. **Miscellaneous.** Includes these:

10.4.2.6.1. Time spent for substance abuse reorientation and treatment (SART).

10.4.2.6.2. Time for survey taking.

10.4.2.6.3. Time spent for household moves (excluded in overseas MAF).

10.4.2.6.4. Time spent for duty hours serving as a juror, witness, defendant, or plaintiff in a military or civilian court, or receiving related legal advice.

10.4.3. The major groupings of nonavailable activities for

civilian personnel are annual leave, sick leave, training, and special absences.

10.4.3.1. **Training.** Includes all formal classroom training of eight hours duration or longer that is recorded on an individual's master personnel record. It excludes OJT, but includes courses given on base that meet the formal eight hour criteria.

10.4.3.2. **Special Absences.** Includes absences during normal duty hours that are administratively authorized without loss of pay and without charge to leave. These absences are described in approximately four publications:

10.4.3.2.1. AFI 36-808.

10.4.3.2.2. AFI 36-701.

10.4.3.2.3. AFI 36-205.

10.4.3.2.4. Federal Personnel Manual, Supplement 990-2, Sub-chapter 11, *Excused Absences*.

10.4.4. Nonavailable activities are not measured during an operational audit (OA) study because they are accounted for in the MAFs. Work sampling accounts for all man-hours including nonavailable activities; however, the resulting nonavailable man-hours are subtracted and not used in the man-hour equation.

10.4.5. Nonavailable activities are not put in the POD.

10.4.6. For more information about nonavailable activities addressed in the MAF, see copies of military and civilian man-hour availability studies distributed to all manpower organizations by HQ AFMEA.

10.5. Preparation of the POD:

10.5.1. Clearly state word process titles and accurately describe the steps that are grouped under them. Use a noun form or an adjective and a noun form (for example, management, minor maintenance, officer classification, record processing). Make the process titles descriptive and easily identifiable.

10.5.2. State step titles in a single unit form with verbs in third person singular. Processes will be described at the step level only (e.g., 1., 1.1., 1.2., 2., etc.). In work sampling measurement, processes will be described to the level necessary for accurate measurement. In either case, each definitive step of the process, from the beginning (input) to the end (output), will be described in the sequence that it occurs in the process. This increases the chances of getting accurate unit times (and frequencies) at the time of measurement. Titles that are vague or written in plural form increase the chance of error in the associated unit time values and may make later analysis of data harder. The same step title may be used in different processes. For example, "Reviews UMD" could be a step in processing a manpower authorization change request or in the process of applying a manpower standard. Examples of acceptable and unacceptable step titles are listed below.

ACCEPTABLE

Types letter

Inspects facility

Attends meeting

Prepares Report No. 1

Repairs pump

Takes sample

UNACCEPTABLE

Type letters

Perform facility
inspections

Attends meetings

Prepare reports

Repairs pumps

Take samples

10.5.3. When preparing a POD, look carefully at AFMS 00AA and the Standard Indirect Allowed Man-Hours (SIAM) task data worksheets to verify that the standard indirect detailed description adequately (completely, or

with slight deviation) describes work activity associated with the work center's indirect workload. When the standard indirect description is adequate, list only the task number and title in the POD and include a reference to AFMS 00AA to see the detailed description. List only those tasks selected for the work center under study. Be sure to include all "parent-level tasks" for those selected to make the POD complete. When the standard indirect description is inadequate, the study team requests a waiver from the parent management engineering activity. On approval of the waiver, include the task number, title, and detailed description for all indirect work in the POD.

10.5.4. Specific preparation instructions for basic PODs are in table 10.3 with an example POD shown in figure 10.1.

Table 10.3. How To Prepare A Process Oriented Description.		
S T E P	A	B
	To complete	Do the following
1	Heading	At the top right corner of each page, type the FAC Number.
2		On the first page, capitalize and center the words "PROCESS ORIENTED DESCRIPTION." Double space and center the work center's (flight's/ section's/element's) functional title (initial caps only). For MAJCOM or base unique manpower standards, add the appropriate MAJCOM designation or base name after the title. For example, "Security Operations Flight, Bitburg."
3	Description	Beginning on the left margin, write the word "DIRECT:".
4		List and number each direct process consecutively (see note).
5		When first used, spell out words that are to be abbreviated throughout the text of the POD. If a form is used, state the form number followed by the complete form title. Separate the form number and title by a comma. Subsequent references to the form should be by form number only.
6		When a direct process cannot be broken into specific steps, capitalize the process title and follow it with a period. Then provide the same narrative description using normal sentence structure and punctuation.
7		When a direct process can be broken into specific steps, capitalize the process title and follow it with a colon. Number and list each subordinate step title in the process (see note and figure 10.1). A step title will not be identical to the process title.
8		After the last direct process double space and add: "INDIRECT. Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of indirect work are Administers Civilian Employee, Administers Officer, Administers Enlisted Personnel, Directs Work Center Activity, Provides Administrative Support, Prepares For and Conducts/Attends Meeting, Administers Training, Manages Supplies, Maintains Equipment, and Performs Clean-Up. See AFMS 00AA for the Standard Indirect Description."
9		Double space and list and number each indirect process using the same numbers used in AFMS 00AA.
10		After each indirect process title, add the following statement. "All standard indirect tasks apply except (list the task numbers from AFMS 00AA that DO NOT apply." Repeat for each indirect process.
11		Omit superfluous information such as measurement instructions, excessive verbiage like "include all productive time to," and vague references.

NOTE: Number all direct processes and steps and indirect categories and tasks starting at the left margin. Do not indent.

Figure 10.1. Example POD Format.

AFMS XXXX**PROCESS ORIENTED DESCRIPTION****Work Center Title****DIRECT:**

1. PROCESS TITLE. Provide a brief description of the purpose of the process. For example, this process is designed to prepare the booster and all related equipment for launch. (**NOTE:** Each process step should include: travel to and from the work area, telephone conversations, and face-to-face interaction between coworkers and outside personnel. If needed, any or all of these items can be shown and measured as a separate step.)

1.1. PROCESS STEP TITLE. Description at process step level.

1.2. PROCESS STEP TITLE. Description at process step level.

1.3. PROCESS STEP TITLE. Description at process step level.

2. PROCESS TITLE. Description of the purpose of the process.

2.1. PROCESS STEP TITLE. Description at process step level.

2.2. PROCESS STEP TITLE. Description at process step level.

INDIRECT: Indirect work involves those tasks that are not readily identifiable with the work center's specific product or service. The major categories of standard indirect work are: Administers Civilian Employee, Administers Officer, Administers Enlisted Personnel, Directs Work Center Activity, Provides Administrative Support, Prepares For and Conducts/Attends Meeting, Administers Training, Manages Supplies, Maintains Equipment, and Performs Clean-Up. See AFMS 00AA for the Standard Indirect Description.

11. ADMINISTERS CIVILIAN PERSONNEL. All standard indirect tasks apply except I1.7.

16. PREPARES FOR AND CONDUCTS/ATTENDS MEETING. All standard indirect tasks apply except I6.1., I6.2., I6.5., and I6.6.

Chapter 11

WORKLOAD FACTOR (WLF) IDENTIFICATION

11.1. General Concepts. The standard workload factor (WLF) is the factor selected to predict a functions' manpower requirement for various workload volumes. Selection of the WLF begins with the identification of potential workload factors (PWLF) during study planning and measurement activities. The identification of PWLFs begins with work unit (WU) identification. WUs are the quantifiable outputs of work activities or processes, e.g. an engine repaired. The selected WLF may be a WU, if its volume is not controlled by the function (external WLF), e.g. square feet of floor space maintained. Ideally, the WLF will also be programmable, e.g. base population, or must describe workload not under control of the function being studied. Programmable workload factors include (1) base population (2) number of authorized aircraft, missiles, space based systems supported, or vehicles supported (3) wing mission (4) mission design series (MDS) (5) flying hours (6) students. Obtain waivers to these criteria from HQ USAF/PER.

11.2. Identifying Work Units:

11.2.1. Study the functional structure to identify significant processes and the output products or units of production. The main purpose of this step is to set the stage for picking PWLFs.

11.2.2. Where feasible, identify work units for each defined work activity or process. This allows a good look at like-activity time variances during analysis and computations.

11.2.3. To be of maximum utility, work units should be:

11.2.3.1. Directly related to the time and effort spent on the associated activity.

11.2.3.2. Economical and convenient to report and use.

11.2.3.3. Mutually exclusive, so that no item is counted

under more than one work unit.

11.2.3.4. Open to audit, so that the accuracy of a work count is readily verified through setting up a work count system or through existing internal work measurement programs or management information systems.

11.2.3.5. Readily understood by those who plan, schedule, and control the work.

11.2.3.6. Readily identifiable when seen produced.

11.2.3.7. Individually standardized in terms of the procedures needed for accomplishment.

11.2.4. Depending on the established or intended use of the work unit, each of the above attributes assumes a varying degree of importance. The most important characteristic of a work unit is that it must define a specific amount of work. Vague work unit titles should be avoided.

11.2.5. WUs can be used as WLFs in ratio type standards and are normally reserved for single location or small population standards. They are not used in standards unless they are programmable, or not under control of the function (external WLF).

11.3. Identifying Potential Workload Factors:

11.3.1. An ideal workload factor has two significant attributes:

11.3.1.1. It relates to manpower requirements to the extent that any change in the value of the factor produces a corresponding change in the man-hours needed to do the work.

11.3.1.2. The value of the factor can be predicted for future time periods to make the standard useful as a forecasting tool.

11.3.2. The relative importance of these two attributes - reliability and predictability - can be debated. But, if a stated manpower requirement is based on a workload factor that does not relate to that requirement, then a standard manpower relationship does not exist. As a result, standard predictability and credibility are undermined.

11.3.3. Identify the predictability of a factor by studying the available program information. Reliability presents a more difficult problem because accurate data for correlation analysis are rarely available this early in the study. For this reason, the best workload factors are normally identified only after measurement. The selection problem is compounded by the relationship that often exists between accuracy and programmability. With a highly finite, precisely defined unit, there is a high probability of correlation, but the chance of predicting the future workload volume is usually small. As the definition of the unit is broadened, the chance of accurately predicting the future volume increases, but the chances of getting an acceptable degree of correlation goes down. The linear relationships shown in the figure are for illustration purposes only.

11.3.4. The problem in determining relationships between workload and man-hours is less where there are existing resource management systems, output measurement programs, or management information systems. This information can help MEP personnel select workload factors.

11.3.5. Workload factors should be both accurate and programmable. If a compromise must be made, use the factors that result in the most accurate standard. Factors that are also used for programming are preferred over those that are not. In setting the basic standard, do not give up accuracy for programmability. When it is needed, a separate equation can be built for programming the manpower requirements.

11.3.6. Identify potential workload factors for measurement using these procedures:

11.3.6.1. First, identify work units not controlled by the function.

11.3.6.2. Second, from these WUs, identify those that are associated with major manpower consuming activities or processes.

11.3.6.3. Third, identify factors that are not work units, e.g. base population.

11.3.6.4. Finally, eliminate factors that are not readily identifiable or easily counted. Counts of the PWLFs and other WUs can be made during familiarization or measurement.

11.3.7. Use terms that give actual experience, and not programmable workload when making the final list of PWLFs. For example, use assigned strength (not authorized strength) for population factors; and hours flown (not hours programmed) for flying hour factors; or munitions stored, not storage capacity. Get actual workload experience for both man-hours and workloads to see if a true relationship exists.

11.3.8. Get the following information for each PWLF picked through the above process. The same format applies to work units.

11.3.8.1. **TITLE.** Identify briefly what is to be counted. Use singular form - i.e., "A Vehicle Repaired" - not "Vehicles repaired."

11.3.8.2. **DEFINITION.** Define, in precise terms, the count and tell what is to be included in or excluded from the count. Vague definitions are not acceptable. For example, if "Population Served" is the workload factor, it must be clear whether the count includes tenants, on-base population, off-base population, transients, Reserves, National Guard, IMAs, etc.

11.3.8.3. **SOURCE AND METHOD OF COUNT.** Identify the source from which the count is to be obtained. This includes the report number and title and column number or title. Include the date or edition of the report since the format of the source might change.

11.3.8.4. **RATIONALE.** Include the reasons for selecting work units or workload factors. Tell how and why the

selected work units or workload factors are expected to relate to the measured man-hours.

11.3.8.5. **METHOD OF VERIFICATION.** Identify the source used to verify the data included in the primary source of count. This includes multiples of sources used to derive the cumulative count documented in the primary source.

11.3.9. After selecting the standard WLF in later study phases, revise the preceding to show program terminology when pertinent. For example:

11.3.9.1. If the selected workload factor title is "A Student Trained in the Manpower Management Course," the workload factor title for the standard might be "A Student Programmed to be Trained in the Manpower Management Course."

11.3.9.2. If the selected workload factor title is "A Person Assigned to Base Supply," the workload factor title for the standard might be "A Base Supply Person Required After Application of Base Supply Manpower Standards," or "A Base Supply Authorization." Do not revise workload factor titles based on population to "Requirements in the UMD" since they may include active reserve forces, individual mobilization augmentees, and authorizations earned as a result of host-tenant support agreements.

11.3.9.3. Manpower standards using actual measured man-hours must be built on actual workload factor counts, e.g., assigned personnel or assigned vehicles, not authorized or required quantities. Authorizations or requirements do not produce work and are not logically relatable to actual measured man-hours.

11.4. Planning a Work Count System:

11.4.1. Make a list of WUs and PWLFs needed for a work count.

11.4.2. Find out which of those items are adequately reported by existing management reporting or information systems.

11.4.2.1. See if the existing instructions are being followed IAW with functional OPR directives. Local compliance to reporting instructions is essential if using existing systems.

11.4.2.2. See whether or not the items needed are reported in defined form and for compatible time periods. If the reported information differs only slightly from what is needed, consider working with the OPR to decide if it is more economical to change the existing report or redefine the items reported. Do not set up additional systems unless it is essential to standards development.

11.4.3. Use the following to get usable and accurate work counts:

11.4.3.1. Show clearly what is a unit of count.

11.4.3.2. Set up the source of count, or the point in a process, at which a unit of count results.

11.4.3.3. Make sure that the length of count reporting is compatible with, or adjustable to, the measurement period's anticipated length. This is especially important if the work sampling method is used.

11.4.3.4. Set up safeguards that minimize the possibility of a duplicated or missed count. An example is a random external audit of the workload reports. See related information in AFI 38-201.

11.4.4. When possible, have the work count procedures call for a minimum of 6 months' historical data. This historical information is of value later in the computation phase when representativeness of the measurement period is evaluated.

11.5. Potential Equivalent Workload Factors. Consider the use of equivalent WLFs if they are suitable for the work center.

11.5.1. An equivalent WLF is used to get a count for similar work that has different per accomplishment times (PAT). For example, the equivalent WLF "vehicle maintained" may have equivalents for preventative maintenance on a sedan or on a truck.

11.5.2. When this kind of WLF is used, a baseline output is valued at one, (in this case the sedan is given a 1.0) and the other outputs are valued in relation to this baseline (for example, the truck could be given a 1.2).

11.5.3. The total WLF count is obtained by adding all equivalents (for example, $(10 \times 1.0) + (5 \times 1.2) = 16.0$).

11.5.4. Identify potential equivalent WLFs early in a study. Then design data collection to allow validation of equivalent values. Work measurement results should support relative values. In the vehicle example, measurement data shows 20 percent more man-hours needed to service a truck than a sedan. Remember, the time value in your measurement (PAT) must be the same for all vehicles used in the equivalent, and it must be equal to the baseline output (in this case the sedan). This is necessary because you are adjusting the workload factor value to compensate for the differences in time needed to service the sedan and the truck.

Chapter 12

MANPOWER STANDARD VARIANCES

12.1. General Concepts:

12.1.1. There are times when processes or process steps differ from those described in the core POD. There are also times when the work center's operating conditions or

equipment at a location are significantly different from those used in the development of the core standard. These differences are called variances and are identified as either positive or negative requirements. They are

categorized as mission, environmental, or technological differences to the core standard. Variances increase the utility of core manpower standards, to meet the unique needs of a command or location.

12.1.2. There are three kinds of variances to a core manpower standard:

12.1.2.1. **Mission.** This variance adds man-hours to a location for required work which is not addressed in the core POD (positive), or subtracts man-hours for required work identified in the core POD, but not performed (negative).

12.1.2.2. **Environmental.** This variance has a similar effect on work center requirements as a mission variance; however, it accounts for differences in operating conditions than those used to develop the core standard (e.g. snow, geographical separation, etc.).

12.1.2.3. **Technological.** This variance has a similar effect on work center requirements as a mission variance; however, it accounts for differences in operating technology than that used to develop the core standard (e.g. automated versus non-automated, special equipment, etc.). An example of a negative technological variance is documenting the man-hour impact of a Fast Payback Capital Investment Program (FASCAP) project in a work center.

12.1.3. When a variance exists at more than four locations, the study team may use a modular equation to adjust the core standard.

12.1.4. When an variance is applicable to more than one MAJCOM, it is considered an inherent part of the Air Force standard development process. When a variance is only applicable to one MAJCOM, the MAJCOM has the responsibility to develop it.

12.2. How To Complete AF Form 1068, Work Center Analysis Record:

12.2.1. In an Air Force standard development effort, MAJCOMs are first given the opportunity to identify variances during coordination of the process oriented description or workshop. MAJCOMs may also identify variances during the 5-day review or after the standard is published. When an installation manpower office identifies a potential variance, they complete an AF Form 1068, **Work Center Analysis Record**, and send it to their MAJCOM for review. If the MAJCOM supports the variance, it sends the AF Form 1068 to the Air Force functional OPR who confirms whether the variance is or is not covered in an Air Force core standard and whether it's applicable to another MAJCOM. If it's only applicable to the requesting MAJCOM, they comment on its merit and tell the MAJCOM whether or not to proceed with variance development. If applicable to more than one MAJCOM, HQ AFMEA develops the variance and sends the results to the Air Staff OPR for approval.

12.2.2. Instructions for completing an AF Form 1068 are in table 12.1. If additional help is required, contact HQ AFMEA.

Table 12.1. How To Prepare AF Form 1068, Work Center Analysis Record.

B O X	Enter
1	Grade, name, organization, and duty phone (include DSN number) of individual performing analysis.
2	Grade, name, organization, and duty phone (include DSN number) of functional OPR contact.
3	The work center title and FAC for the specific work center being addressed.
4	The name of the installation and the command where the comments apply. Only one base is put on each form. If there are command-wide variations, put them on one form and only put the MAJCOM title in this block.
5	The date the form is completed.
6 A	Consecutive numbers for each variance.
6B	Appropriate cross-reference to the process, step, or paragraph in the POD for each variance.
6 C	Each variance title as a separate entry beginning with the impact of the variance (positive or negative) and its type (i.e., mission, environmental, or technological).
6 D	Complete supporting explanation for each entry. Include the source (e.g., instruction, policy letter, etc.) that is generating the variance.
6E	The estimated monthly man-hour impact associated with each positive variance. This column is left blank when identifying possible negative variances.
6F	Specific comments on the disposition of each entry as determined by the MAJCOM, HQ AFMEA, or Study Team. HQ AFMEA or Study Team confirms if entry is in the AFMS or has merit.

12.3. Positive Variance Development:

12.3.1. By definition, processes outlined for positive variances must not be in the core POD. These added

activities must be directed by MAJCOM or higher headquarters policy or publication.

12.3.2. Mobility, deployment, and war plan exercises are

activities generally recognized as positive mission variances. Work centers with these activities can only receive man-hour credit for participation in exercises that meet all the listed criteria:

12.3.2.1. Are directed by MAJCOM or higher headquarters.

12.3.2.2. Require only a part of the total number of work center personnel to take part. (An example of this is when only three people in a 20-person work center deploy to another base to take part in a two week exercise.)

12.3.2.3. Have these participating personnel function away from the normal work center area; either on base or TDY at another base.

12.3.2.4. Do not result in the rotating of personnel between the normal work center area and a deployment site that is permanently manned by the work center.

12.3.2.5. Demonstrate and document a recurring need to support exercises. Historical exercise participation data for the most recent two or three years is needed to build confidence that the workload is constant.

12.3.3. Man-hour credit can be given for these activities in support of mobility, deployment, or war plan exercises:

12.3.3.1. Developing mobility and work center tasking plans.

12.3.3.2. Maintaining a day-to-day mobility capability according to the mobility and work center tasking plans. Some of these activities include:

12.3.3.2.1. Periodically taking inventory of mobility containers.

12.3.3.2.2. Removing and replacing materials in mobility containers.

12.3.3.2.3. Inspecting mobility equipment containers and equipment for proper identification and serviceability.

12.3.3.2.4. Maintaining the mobility status of personnel and equipment.

12.3.3.3. Work done in exercises by assigned work center personnel that is the responsibility of the work center but only occurs because an exercise took place. An example is the reporting to, and signing in at, the mobility processing line by work center personnel. This may also be work that occurs on a day-to-day basis in the normal work center area, but has significant frequency increases caused by exercise workload. In this case, define work activity in sufficient detail to discriminate between normal work center requirements and exercise work center requirements. This ensures activity frequencies for the variance are not duplicated in the categories of the basic standard.

12.3.3.4. Work done in an exercise by assigned work center personnel that is a responsibility of the function (two-digit functional account code) but not a peacetime responsibility of any specific work center within the function. An example of this is when a vehicle maintenance craftsman within AETC performs aerial port

duties in support of a deployment exercise. Make sure this work is not a responsibility of another work center.

12.3.3.5. Preparing to give and giving the training offered in mobility, READY, PRIME BEEF, and PRIME RIB courses.

12.3.3.6. Receiving the training given in mobility, PRIME BEEF, and PRIME RIB courses not listed in AFI 36-2202.

12.3.4. Work centers do not receive added man-hour credit for these items:

12.3.4.1. Receiving of READY training or training for augmentation programs. This is defined as training not related to an individual's duty AFSC.

12.3.4.2. Participating in an exercise under the READY or augmentation programs.

12.3.4.3. Participating in an exercise as an evaluator.

12.3.4.4. Post-exercise rest days.

12.3.5. Calculate man-hours for work center participation using table 12.2 and figure 12.2. The computed man-hours are for the people actually on orders to take part in the exercise. This is based on the policy that participating personnel are working under simulated wartime surge conditions and are available to their functional areas or individual work centers according to the wartime surge man-hour data in AFI 38-201. Work center personnel in a non-exercise status are also expected to surge to this higher availability rate, when necessary, to offset temporary exercise impacts.

12.3.6. Analyze mobility support work centers to see if the support caused basic standard activity frequencies to be discontinued or decreased during exercises:

12.3.6.1. Describe discontinued or decreased activity frequencies in the variance documentation.

12.3.6.2. Document discontinued or decreased activity frequencies not made up at a later date and not accounted for by WLF counts as a negative variance. Discontinued or decreased activity frequencies accounted for by WLF counts are noted in the positive variance documentation.

12.3.7. Use any of the measurement or nonmeasurement methods such as work sampling, operational audit, time study, minimum manning, and staffing pattern to get the data needed for the variance.

12.3.8. Use SIAMs to credit a work center for indirect man-hours associated with a positive variance. The following instructions allow credit for indirect personnel generated man-hours for a positive variance:

12.3.8.1. **Step 1.** Measure the direct man-hours associated with the variance. Let's assume the added direct man-hours are 206.47.

12.3.8.2. **Step 2.** Convert the direct man-hours to manpower: For example: $206.47 / (149.2 \times 1.077) = 1.285$

12.3.8.3. **Step 3.** Decide whether the fractional manpower derived in the previous step is to be a civilian, officer, or enlisted requirement.

Table 12.2. Computation of Man-Hours For Exercise Participation.												
S T E P	A	B										
	Action	Example										
1	Identify the work center and base for which the exercise participation man-hours are to be calculated.	WORK CENTER FAC: XXXX WORK CENTER LOCATION: SMITH AFB										
2	Specify the number of months and time frame from which the work center's exercise participation data is obtained.	24 months (Jan 92 - Dec 93)										
3	Identify the names of the exercises in which work center personnel participated during the time frame specified in step 2.	EXERCISE 92-1 EXERCISE 92-2 EXERCISE 92-3 ETC.										
4	For each exercise, identify the different periods of time (in calendar days) for which work center personnel participated in the exercise.	<table><tr><th>Exercise Name</th><th>Number of Calendar Days</th></tr><tr><td>EXERCISE 92-1</td><td>30</td></tr><tr><td></td><td>15</td></tr><tr><td>EXERCISE 92-3</td><td>15</td></tr><tr><td>ETC.</td><td></td></tr></table>	Exercise Name	Number of Calendar Days	EXERCISE 92-1	30		15	EXERCISE 92-3	15	ETC.	
Exercise Name	Number of Calendar Days											
EXERCISE 92-1	30											
	15											
EXERCISE 92-3	15											
ETC.												
5	For each period of time identified in step 4, specify how many work center personnel participated.	<table><tr><td>For Exercise 92-1</td><td></td></tr><tr><td>Number of</td><td>Number of</td></tr><tr><td><u>Calendar Days</u></td><td><u>Personnel</u></td></tr><tr><td>30</td><td>2</td></tr><tr><td>15</td><td>2</td></tr></table>	For Exercise 92-1		Number of	Number of	<u>Calendar Days</u>	<u>Personnel</u>	30	2	15	2
For Exercise 92-1												
Number of	Number of											
<u>Calendar Days</u>	<u>Personnel</u>											
30	2											
15	2											
6	Compute the man-hours for each time period in the exercise. Multiply the calendar days of each time period by the number of people who participated for that time (found in step 5) by the numerical constant of 10.29 (see note).	For Exercise 92-1 (30) (2) (10.29) = 617.40 man-hours (15) (2) (10.29) = 308.70 man-hours										
7	Multiply the man-hours from step 6 by a MAF constant. The MAF constant is the ratio of the applicable peacetime MAF times the overload factor (149.2 x 1.077 for CONUS & overseas) to the military wartime surge MAF (309). It converts a wartime surge man-hour value to a peacetime equivalent value. The MAF constant is 0.52.	Smith AFB is a CONUS base. Therefore, for Exercise 92-1, the following will be multiplied. (617.40) (.52) = 321.05 (308.70) (.52) = 160.52										
8	Sum the man-hour values computed in step 7 for all exercises in the study time frame.	Total Exercise Man-Hours = 7849.62										
9	Compute the average monthly man-hours for a work center's exercise participation by dividing the man-hour total found in step 8 by the number of months for which exercise data is reported (step 2).	$\frac{7849.62}{24} = 327.07$										

NOTE: The constant used in step 6 is the result of the monthly assigned days for wartime surge divided by the average monthly calendar days multiplied by the wartime surge man-hours per person.

$$\frac{(26.09) (12)}{30.44} = 10.29$$

Figure 12.1. Example of Exercise Participation Man-Hour Computation.

WORK CENTER FAC: XXXX									
WORK CENTER LOCATION: SMITH AFB (CONUS)									
MONTHS BEING STUDIED: 24 MONTHS (JAN 87 - DEC 88)									
EXERCISE NAME	NUMBER OF CALENDAR DAYS	X	NUMBER OF PERSONNEL	X	NUMERICAL CONSTANT	X	MAF CONSTANT	=	TOTAL EXERCISE MAN-HOURS
Exercise 87-1	30		2		10.29		.52	=	321.05
	15		2		10.29		.52	=	160.52
Exercise 87-2	45		5		10.29		.52	=	1203.93
Exercise 87-3	30		3		10.29		.52	=	481.57
	45		3		10.29		.52	=	722.36
	90		1		10.29		.52	=	481.57
Exercise 87-4	18		6		10.29		.52	=	577.89
Exercise 87-5	30		1		10.29		.52	=	160.52
Exercise 88-1	45		3		10.29		.52	=	722.36
	30		1		10.29		.52	=	160.52
Exercise 88-2	30		7		10.29		.52	=	1123.67
Exercise 88-3	18		3		10.29		.52	=	288.94
	24		3		10.29		.52	=	385.26
	30		3		10.29		.52	=	481.57
Exercise 88-4	18		6		10.29		.52	=	577.89
									7849.62
The average monthly man-hours for exercise participation				=	7849.62				
					24				

Chapter 13

MEASUREMENT AND DOCUMENTATION

Section A--Measurement Design

13.1. General Concepts. Measurement design is a coordinated effort needing full participation and team work from all levels. Once you've selected your measurement approach, as discussed in chapter 7, you can begin to prepare for measurement. There are many different techniques available for collecting data. However, there are really only two approaches (1) workshop measurement and (2) field measurement. Regardless of the approach selected some form of study plan is required. A workshop approach may require a less detailed one, but will require an extensive familiarization package for the workshop attendees. On the other hand, field measurement will require a very detailed study plan because persons other than study team members may be conducting the actual data collection or measurement.

13.2. Major Activities. Following are some major design activities. Depending on the approach, some or all may be required.

13.2.1. Briefing study background and planned approach with functional OPR.

13.2.2. Identifying study team members from MEP and functional communities.

13.2.3. Conducting a comprehensive review of work processes and activities. Identifying improvement initiatives and work outputs.

13.2.4. Identifying potential variances (mission, technological, or environmental).

13.2.5. Developing a study plan or familiarization package. If a formalized study plan is developed for field measurement, the study team tests the plan during measurement design to fine tune essential data needed to prepare and incorporate measurement instructions. If workshop measurement is selected, the study team may still need to make pre-workshop field visits to determine exactly what data will be needed by participants.

13.2.6. Coordinating study plan, familiarization package, and potential variance documentation with senior functional OPRs.

13.2.7. Identifying test measurement or pre-workshop visit locations.

13.2.8. Briefing local OPRs at test measurement or pre-workshop visit sites on study background, approach and needs, and collecting data.

13.2.9. Developing the final detailed study plan and familiarization package to include data collection instructions.

13.2.10. Telling the Chief of Central Civilian Personnel to inform union officials of study progress.

13.3. Measurement Plan. Although field measurement will be the exception, if the study team chooses this approach, instead of conducting a workshop, they must develop a formalized measurement plan. If they developed the study plan, then they may use the process described below for measurement plan development (see figure 13.1).

13.3.1. After test measurement, the study team updates the measurement design based on test measurement results. The study team converts the study plan cover page to the measurement plan cover page by replacing the words STUDY PLAN with MEASUREMENT PLAN and changing the date. Part One of the study plan becomes Part One of the measurement plan. The parent management engineering headquarters approves the measurement plan and the study team sends it to the input teams and affected MAJCOMs (NLT two weeks before work measurement).

13.3.2. Part Two - Input Team Measurement Instructions. The measurement instructions and POD in this part represent the heart of the measurement plan. Section A of the measurement plan is general information which is common to all work centers being measured. The remaining sections contain specific measurement instructions for each work center. For example, if three work centers are being measured, include sections B, C, and D (one for each). If measuring only one, don't divide Part Two into sections; however, include each applicable topic shown in figure 13.1.

13.3.2.1. Section A - General Information. Give clear and concise measurement instructions to input teams. Tell them how to measure the function. Put MEO initiative measurement instructions in attachment 2 of the measurement plan. Do not merely repeat information from this manual; however, include specific instructions for these:

13.3.2.1.1. Work Sampling. Address familiarization sampling, backlogged work, borrowed and loaned man-hours, start and stop days for sampling, usable sampling days needed, stratified-by-hour or random-by-day sampling, sampling lunch, nonavailable time, nonproductive time and special processes, treatment of travel, indirect categories, absences from the work area, work not done during the sampling period, assumed or inferred work, collocated work centers, shifts or sections having fewer than five people assigned, sampling days falling outside control limits, and supplementary

Figure 13.1. Outline of Measurement Plan.

*	PART ONE - (Same as Study Plan)
**	PART TWO - MEASUREMENT INSTRUCTIONS
	Section A. General Informations
	Measurement Instructions
	Skill and Grade Instructions
	Section B. Specific Information (by Work Center)
***	Process Oriented Description
	Statement of Conditions
	Work Measurement Instructions
	PART THREE - MEASUREMENT REPORT FORMAT AND INSTRUCTIONS
	PART FOUR - BIBLIOGRAPHY AND GLOSSARY
	2 Atch
	1. Potential WLFs and
	Instructions
	2. Initiative Measurement
	Workload Collection
	Instructions

NOTES:

- * Part One of the study plan becomes Part One of the measurement plan.
- ** Only sectionalize Part Two if there is more than one POD.
- *** The POD comes from the study plan.

measurement method used and the processes or steps that will be measured by this method.

13.3.2.1.2. **Operational Audit (OA).** State the technique to measure frequencies and per-accomplishment times. Relate frequencies to work unit counts where possible. An interview worksheet may be used for collecting OA data instead of a preprinted AF Form 1040, **Operational Audit Data.** If used, interview worksheets should include information necessary for the input teams to collect and verify data, and for the study or input team to input data directly into the computer. Furnish benchmark times and data ranges when practical.

13.3.2.1.3. **Workload Data Collection.** Include only general workload collection instructions which pertain to all work centers being measured in this section. Put specific workload collection instructions in attachment 1 to the measurement plan.

13.3.2.1.4. **Standard Indirect Allowed Man-Hours (SIAM).** State which SIAM task time values will be used for operational audits and indicate which indirect tasks will

be measured. Instruct field measurement sites to use the measurement instructions furnished in AFMAN 38-208, Volume 2, for measuring these indirect tasks.

13.3.2.1.5. **Strength Data.** State the need for current or historical authorized and assigned strength data. This data may be needed for a potential WLF in a management work center, for comparison against measured requirements, or analyzing changing workload.

13.3.2.1.6. **Skill and Grade Instructions.** List the data necessary for the study team to do skill and grade analysis for completion of the manpower table. In some cases, eliminate or shorten this step if skill and grade requirements can be decided at the workshop or during later staffing. Tell the input teams to collect skill and grade data for inclusion in the measurement report.

13.3.2.2. **Section B - Specific Information (by Work Center).** This section is for specific work center. For example, if three work centers are being measured, include a section B, C, and D (one for each).

13.3.2.2.1. **POD.** Prepare PODs according to instructions in chapter 10.

13.3.2.2.2. **Statement of Conditions (SOC).** In the SOC paragraph, describe, in general terms, conditions which bear on development or application of the manpower standard. The SOC will later be used in preparation of the manpower standard. Include key assumptions and major decisions on modes of operation not described in the POD. The SOC in the standard describes significant initiatives and the general conditions that are incorporated into the standard.

13.3.2.2.3. **Work Measurement Instructions.** Describe specific work measurement instructions peculiar to each work center in these sections. Do not repeat the general measurement instructions in section A.

13.3.3. Part Three - Measurement Report Format and Instructions:

13.3.3.1. Tailor the content of the measurement report to the needs of the study. Limit the measurement report to minimum essential data. Do not ask for information which will not be used during data analysis and computations or during development of the final manpower standard. Furnish a table of contents listing the data collection forms, work measurement forms, skill and grade data, etc., as a minimum.

13.3.3.2. Specify data submission by the most expedient means. Maximize the use of E-mail and user input directly into MSDS. Set suspense dates as the latest day information must be dispatched. Allow two weeks mail time for overseas locations.

13.3.4. Part Four - Bibliography and Glossary:

13.3.4.1. List functional publications which form the basis for functional mission requirements (both wartime and peacetime operations).

13.3.4.2. The input craftsman is not expected to be intimately familiar with unique functional terms and acronyms. Therefore, check the POD and identify terms and acronyms which must be defined in the glossary. List terms in alphabetical order.

13.3.5. Attachments to the Plan:

13.3.5.1. List all potential WLFs needing data collection. If this list is the same as the one attached to the study plan, tell the input team to insert the list in the area reserved for that information. Omit potential WLFs which don't logically relate to required man-hours. Limit wartime potential WLFs to major program factors such as population, aircraft authorized, and sortie rate. State the title, definition, source of count, and rationale for each potential WLF.

13.3.5.1.1. **Title.** Identify briefly what to count. Use singular form - i.e., "A Vehicle Repaired" - not "Vehicles Repaired."

13.3.5.1.2. **Definition.** Define, in precise terms, the count and tell what to include in or exclude from the count. Vague definitions are not acceptable. For example, if "Population Served" is the workload factor, it must be

clear whether the count includes tenants, on-base population, off-base population, transients, etc.

13.3.5.1.3. **Source and Method of Count.** Identify the source from which the count is to be obtained. Be sure to include all information which could be used in identifying where, when, and what data is to be collected. Make sure the instructions will achieve the desired results by testing them. Tell how to record data when the count is zero or nonavailable.

13.3.5.1.4. **Rationale.** Include the reasons for selecting work units or workload factors. Tell how and why the selected work units or workload factors are expected to relate to the measured man-hours.

13.3.5.1.5. **Method of Verification.** Identify the source used to verify the data included in the primary source of count. This includes multiple sources used to derive the cumulative count documented in the primary source.

13.3.5.2. Furnish specific measurement instructions for initiatives developed in the MEO study. Include a description of the initiative and corresponding WLF, where relevant.

Section B--Work Measurement

13.4. Major Activities. Following are some potential major measurement activities. Depending on your approach, some or all may be required.

13.4.1. Briefing the work center personnel about the measurement and the need for their participation.

13.4.2. Measuring work and collecting workload data according to measurement instructions for the basic standard. Also, measuring and collecting data for any variances.

13.4.3. Examining measurement results to make sure measured and collected data are accurate and show work center requirements.

13.4.4. Briefing measurement report findings to base functional OPR.

13.4.5. Coordinating the measurement report findings with the MAJCOM OPR.

13.5. Workload Collection:

13.5.1. The study team identifies workload collection needs. They include data collection instructions in the familiarization package when requesting functional representatives bring data to the workshop. For field measurements, the study team collects historical workload volume for the period specified. They also start a collection system to accurately capture the historical and current workload when such a system does not exist. Report workload data on a general purpose form or comparable computerized format.

13.5.2. Data collection starts at the direction of the study team and continue until told to stop. Collection continues until enough data is available for standard application.

13.5.3. The study team decides whether to revise an existing reporting system or institute a new report. After data analysis and computations, a functional report control symbol (RCS) is assigned for workload data reporting. If the OPR must set up a new RCS report, furnish help to make sure the new report gives adequate information for workload data reporting.

13.5.4. The study team may direct collection of WLF data at locations other than those used for work measurement. Base these needs on study objectives and information needed for the study report and impact application.

13.5.5. Field measurement sites immediately tell the study team if they find difficulties in workload collection. For example, an unavailable source of count or an unclear definition of the WLF distorts the data.

13.6. Work Measurement. Conduct measurement according to the method and instructions specified by the study team. Notify the study team immediately if difficulties are encountered or work requirements are identified which are not in the POD and have not been identified for variance development. Inaccurate data results from failure to follow the instructions or from making assumptions when the instructions do not cover a given situation. Measure and document controversial steps separately until the issue is resolved. Special measurement considerations follow.

13.6.1. Personal, Rest, and Delay Allowances. When using work sampling, time study, or good operator timing, the normal time to do an operation does not include allowances for the workers' personal needs, rest, or work interruptions that are beyond the workers' control. These measurement methods and techniques are based on statistical accuracy and are designed to measure the amount of time associated with the process or step. In these cases, apply allowances to find the allowed time. Allowances are classified as personal, rest, and unavoidable delay. Instructions for computing allowances are in AFMAN 38-208, Volume 2. Generally, the study team identifies the relevant allowances and includes them in the measurement plan.

13.6.2. Indirect Work. The primary means of crediting indirect work for operational audit studies is by using SIAMs. AFMAN 38-208, Volume 2, furnishes details on SIAMs.

13.6.3. Pace Rating. When using work sampling and time study, the consultant compares the observed pace of the worker to the normal pace at which the work would be done. This comparison and associated adjustment of step times is called pace rating and is designed to account for varying experience and skill levels within the work center. Instructions for pace rating are in AFMAN 38-208, volume 2.

13.6.4. On-Call Time:

13.6.4.1. On-call time is a period of time an off-duty worker is available at a prearranged off-duty location and can be reached by telephone or other means.

13.6.4.2. When authorized work is required and cannot be held over to the next duty day, credit the work center with the productive time expended and the travel time needed to get to the job site and return to the off-duty location.

13.6.4.3. Examples of on-call time are: a photographer who periodically is needed to take photos after duty hours; a maintenance journeyman needed infrequently to repair or replace a critical item of equipment; or an information officer who responds to local press inquiries when notified.

13.6.4.4. Off-duty time spent waiting for a call is not measured or included in manpower standards.

13.6.5. Borrowed Time and Loaned Time:

13.6.5.1. Borrowed time is time provided by personnel authorized and assigned to another work center, but used to do productive work within the work center being studied. Include borrowed man-hours under the pertinent process or step.

13.6.5.2. Loaned time is time expended by work center personnel to do work which is the responsibility of another work center. Do not include loaned man-hours in the loaning work centers' manpower standard.

13.6.6. Overtime Credit. The productive time spent in excess of regularly scheduled duty hours. This time must be used to do productive work and cannot be caused by nonproductive activities or offset by compensatory time. For civilians, include only that overtime which is documented according to the Federal Personnel Manual (FPM) Supplement 990-2 and AFI 36-805. For military personnel, document and thoroughly analyze the need for overtime. Ask the supervisor to validate overtime. If overtime is a normal occurrence, visit the work center during overtime periods and observe the work in progress. Identify the backlog driving the overtime work. Include validated overtime as part of the relevant process or step time.

13.6.7. Idle Time. This includes time spent by a worker in an avoidable delay status, doing unnecessary work, or doing work not job related. Measure idle time only during work sampling and never include it in the manpower standard.

13.6.8. Standby Time. This is time spent in a ready status awaiting work when work is unavailable (for example, the time a taxi driver waits to be dispatched). Include standby time only when it is essential to do the mission and when no other work (direct or indirect) can be done.

13.6.9. Nonavailable Time. This is time work center personnel spend participating in activities directed, recognized, or approved by the Air Force which render them unavailable for assigned primary duties. The major groupings of nonavailable activities are: leave, PCS-

related, medical, organizational duties, education and training, social actions, and miscellaneous. See paragraph 10.4 for more information on nonavailable activities.

13.6.9.1. Measure nonavailable activities only with work sampling. Work sampling must account for all man-hours. Do not include nonavailable time in the allowed man-hours used to construct the manpower standard.

13.6.9.2. Nonavailable activities measured Air Force wide are shown in the MAF published in AFI 38-201. Do not include these in the POD.

13.7. Data Examination. The examination and analysis of input data is an integral part of data collection and is done by the input team (when input teams are used). Improper examination results in incorrect data being used for standard development. AFMAN 38-208, volume 2, shows some procedures for effective data analysis. Basically the analyst should:

13.7.1. Compare data with known or expected values.

13.7.1.1. Compare measured and collected data with performance standards, directed requirements, and benchmark values included in the measurement plan.

13.7.1.2. Compare historical workload volume with workload observed during data collection.

13.7.1.3. Compare historical workload volume with the workload (frequencies) obtained during measurement.

13.7.1.4. Compare measured man-hours (on a daily basis) with assigned man-hours.

13.7.1.5. Compare workload factor volumes. Compare workload factors either directly or by a ratio relationship. For example, the ratio of aircrew members to aircraft should be predictable and relatively stable.

13.7.2. Investigate when comparisons yield unreasonable or illogical results. This investigation may lead to a need for remeasurement. Identify situations which logically support apparent data inconsistencies. Submit rationale for inconsistencies to the study team.

13.8. Data Transmission. The study team should identify the most cost effective data transmission vehicle and require its use. E-mail is highly encouraged.

13.9. Review and Coordination. The M&O function coordinates measurement report findings with the functional community as specified in the study contract.

13.10. MEO Report Update. During the measurement period, the study team compiles additional data and updates and refines the MEO study report details and impact estimates.

Section C--Data Analysis and Computation

13.11. General Concepts. This section introduces data analysis and computation into the normal flow of standards

development activities. It covers how to do data analysis. AFMAN 38-208, volume 2, covers specific procedures.

13.12. Data Analysis and Computation Instructions. Variations in measurement data from the input locations are expected. Do systematic data analysis to separate valid variations from incorrect measurements and make sure inaccurate man-hours are not included in computing the manpower model.

13.12.1. Every analysis technique will not apply in all situations. Evaluate measurement data using comparative arrays and scattergrams. Maximize the use of the Manpower Standards Development System (MSDS) or the Workshop Manpower Determinants System (WMDS) to identify areas for examination.

13.12.2. Do not include or exclude measurement data based on arbitrary statistical limits (e.g., outside two standard deviations of the mean). Evaluate each suspect data point further before making a final decision on disposition. There is no valid statistical substitute for logical analysis and examination of the reasons for data variation. If a data point is excluded or adjusted for model computations, document the reason for the exclusion or adjustment. Furnish specific rationale for why the standard should apply to a location excluded from computations.

13.12.3. When SIAMs are used for a function, analyze only direct man-hour data.

13.12.4. Do not make arbitrary adjustments to measured data. The study team must coordinate any adjustment with the input team who, in turn, must coordinate the adjustment with the base OPR. Coordinate adjustments based on functional policy with the functional OPR. Document all adjustments in the data analysis and computations summary and audit trail (backup file) of the study report. Audit trails of all corrections, including computational errors and rounding differences, are kept in the study teams' backup file but are not documented in the study report.

13.13. A Recommended Process:

13.13.1. First, the study team immediately makes sure the input teams' measurement report is complete. It is very difficult for the input team to furnish missing data if it's not contacted soon after the measurement report is received.

13.13.2. Next, the study team updates the MEO report to show measurement data for each initiative and any new information regarding MEO study recommendations. The team keeps an audit trail and man-hour or manpower summary on each initiative.

13.13.3. The study team staffs the updated MEO report as specified in the study contract.

13.13.4. The parent management engineering headquarters and functional manager decide which initiatives to include in the standard. The decision is made and communicated to the study team before the end of data analysis and computation. The study team incorporates senior

leadership selected manpower impact initiatives in the man-hour data used to develop and select the final manpower model. The study team includes the updated MEO report as an attachment to the standards development study report.

13.13.5. After the measurement data is analyzed, testing of various man-hour and WLF relationships begins. The method for testing is regression analysis.

13.13.6. During model selection, consider ease of application and utility for the functional OPR to manage manpower requirements. Difficulties result from workload factor interdependency, i.e., the application of two work centers when the workload factor for one depends on the application results of the other, and vice versa. Avoid selection of equations that result in interdependency.

Section D--Final Report

13.14. Major Activities. Major study report activities follow:

13.14.1. A quality assurance review of the report for technical accuracy and logic by an agency other than the study team is highly recommended. This review should address: Validity of analysis done, statistical accuracy, compliance with publications, and logic of workload factor and man-hour relationship.

13.14.2. Coordination of the study report as specified in the study contract.

13.14.3. Revision of the study report to make changes resulting from paragraph 13.14.2.

13.14.4. Publication of the approved standard.

13.14.5. Inclusion of new workload factor counts in existing RCS systems. If a report does not exist, the OPR originates the necessary report for collecting workload data needed by the standard.

13.15. Study Report--Cover Page and Table of Contents. On the cover page, use enough information to readily identify the type of study report (i.e., standard development study report, variance study report, etc.); the functional area covered to include the functional account code; whether it is a peacetime, wartime, or combination study; who conducted the study; and date of the study. In the table of contents, provide the following sections, as appropriate: introduction, manpower standard (if

applicable), data analysis and computation, and attachments. Follow the layout provided in figure 9.3.

13.16. Study Report--Part One--Introduction:

13.16.1. Study Identification, Functional Areas, and Wartime Applicability. Give a general description of the study scope. Include work center title and FAC. Also state whether this standard applies to:

13.16.1.1. **Peacetime operations only.**

13.16.1.2. **Both peacetime and wartime operations.**

13.16.1.3. **Wartime operations only.** If the study covers wartime operations, state the applicable scenarios.

13.16.2. Development Method. State whether the standard documents remeasurement, partial measurement, or an administrative update. Cite the work measurement methods used to develop the standard; for example, work sampling or operational audit (good operator technique).

13.16.3. Development Locations. List the input locations used for work measurement and data collection. If multiple work centers are covered by the standard, identify any work centers that were not measured at a given location.

13.16.4. Study Period. List the beginning and ending dates of each phase of the study.

13.16.5. Study Participants. List lead team members and functional OPR representatives. Include their office symbol, DSN number, and specific functional area.

13.16.6. Reference Documents. Cite the study plan, measurement plan, executive summaries, and other relevant documents. Give dates of all documents.

13.16.7. Follow-on Actions. Identify the actions that must occur to ensure proper implementation and use of the standard. Address the need for changes to unit type codes following approval of wartime standards or guides.

13.17. Part Two--Manpower Standard. The manpower standard is presented in Part Two. Formatting presents the standard for final coordination, validation, approval, application, and publication as a departmental or command document. Figure 13.2 shows, in outline form, the format of a manpower standard. The information in the following paragraphs represents the minimum essential formatting requirements. Any other information deemed "value added" may be included.

Figure 13.2. Publication Format for a Manpower Standard.

DEPARTMENT OF THE AIR FORCE (See paragraph 13.17.1.) Headquarters US Air Force Washington DC 20330 TITLE (See paragraph 13.17.2.) 1. Mission Statement. See paragraph 13.17.3. 2. Responsibility Statement. See paragraph 13.17.4. 3. Authority. See paragraph 13.17.5. 4. Applicability. See paragraph 13.17.6. 5. Core Composition. See paragraph 13.17.7. 6. Standard Data: See paragraph 13.17.8. 6.1. Approval Date. 6.2. Man-Hour Data Source: 6.3. Man-Hour Equation. 6.4. Workload Factor. 6.4.1. Title. 6.4.2. Definition. 6.4.3. Source. 6.5. Study Team. 7. Application Instructions. See paragraph 13.17.9. 8. Statement of Conditions (SOC). See paragraph 13.17.10. PUBLISHED UNDER THE AUTHORITY OF THE SECRETARY OF THE AIR FORCE <div style="text-align: right; margin-right: 50px;"> # Attachments 1. Process Oriented Description 2. Standard manpower Table 3. Variances 4. Process Analysis Summary </div> SUMMARY OF CHANGES (When an AFMS is revised, include a statement immediately after the last attachment listed that contains a detailed summary of what was added, deleted, or changed. Include a reference to the paragraph or tables in the affected part of the AFMS and the reason why the item was changed.) (NOTE: The following information only goes at the bottom of the first page of the standard.) <hr style="width: 20%; margin-left: 0;"/> Supersedes (specify AFMS and date of publication. (See signature page for summary of changes.) No. of Printed Pages: OPR: HQ AFMEA/PLDM OCR: (Office that developed the AFMS) Distribution: F	AFMS (FAC
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13.17.1. **Heading.** Identify the manpower standard by placing the FAC at the top right corner of the first page of the manuscript. The FAC is preceded by "AFMS" for Air Force manpower standards. Follow the information provided in paragraph 13.19.3 for additional information which needs to be provided.

13.17.1.1. For a wartime manpower standard, add an alphabetical suffix to show the type of environment; see chapter 9.

13.17.1.2. When two manpower standards exist for the same work center under two different organizational structures, add an alphabetical prefix to the number.

13.17.1.3. To identify a standard that applies to wartime only, add the prefix "W" to the number.

13.17.1.4. When the indirect description in AFMS 00AA applies, publish the direct process description and only the indirect task numbers, by category, that DO NOT apply. Publish the description for indirect categories only when AFMS 00AA does not adequately describe the indirect categories. A functional description may be used in lieu of the POD for standards based on functional model development. Publish the POD and manpower table as attachments to the manuscript pages of the basic standard.

13.17.2. **Title.** Identify the standard by placing the appropriate designation; flight, section, or element, in the middle of the page, directly below the heading. For MAJCOM or base unique manpower standards, add the appropriate MAJCOM designation or base name after the title. For example, "Security Operations Flight, Ramstein."

13.17.3. **Mission Statement.** Prepare a brief, concise statement of the mission objectives for the function under study. Try to limit this statement to five typed lines.

13.17.4. **Responsibility Statement.** This is a series broad

statements which define the mission support capabilities of each subordinate element. These statements should encompass the major processes or work activities performed in support of the flight. If a flight has no subordinate elements, the responsibility statement is not required.

13.17.5. **Authority.** Cite appropriate functional and management engineering sources that support the manpower standard and its development.

13.17.6. **Applicability.** Include a statement which identifies the environment in which the function operates (peacetime/wartime). Additionally, specifically address the following:

13.17.6.1. Furnish an applicability statement by MAJCOM, organizational elements, weapon system, etc., as pertinent. Specify the locations where the standard applies or does not apply, whichever is less. Also identify any limitations that restrict when and how the manpower standard can be used.

13.17.6.2. Identify specific applicability to the Air National Guard and Air Force Reserve units programmed to be gained by active force MAJCOMs and FOAs.

13.17.6.3. State that bases undergoing AFI 38-201 cost comparison studies will be exempt from standard application. Also state that standards do not apply to locations that have completed cost comparisons. For objective flight standards, the above statements are only applicable if the entire flight is undergoing or has undergone an AFI 38-201 cost comparison study. If an element within a flight is undergoing or has undergone an AFI 38-201 cost comparison study, a mission variance must be developed to account for these man-hours. See figure 13.3 for an example application instructions for a cost comparison mission variance.

Figure 13.3. Example Application Instructions for a Cost Comparison Mission Variance.

APPLICATION INSTRUCTIONS FOR A-76 COST COMPARISON POSITIONS	
1. NEGATIVE MISSION VARIANCE. Develop a negative mission variance to reduce the core process man-hours for those processes that have undergone an A-76 Cost Comparison and have been contracted-out or remained in-house.	
1.1. STEP 1. Determine the core process man-hours that were cost compared by identifying the cost compared processes listed in the Process Analysis Summary. For example, assume that BITC was cost compared in the IM Flight. The process "Manage Official Mail" is the only process performed by BITC. This process equates to 386.00 core man-hours (2.40 fractional manpower).	
1.2. STEP 2. Determine total flight core process man-hours. In the IM Flight, the total flight core man-hours equate to 2978.50.	
1.3. STEP 3. Determine the percentage of the cost compared process to the total flight core process man-hours. In this example, it equates to 12.95% (386.00/2978.50). This step is necessary because the cost compared process man-hours are imbedded in the core +/- manpower equation ($Y = 18.54 + (\text{population supported} - 3,000) * 0.003056$).	

(Figure continued on next page)

Figure 13.3. Continued.

1.4. STEP 4. Apply the core +/- manpower equation ($Y = 18.54 + (\text{population supported} - 3,000) * 0.003056$). For example, assume that the population at your location is 5,000. This equates to 24.65 fractional manpower requirements.

1.5. STEP 5. Determine the negative variance manpower (man-hours) by multiplying the fractional manpower result in Step 4, by the cost compared process percentage in step 3. For example, $24.65 * 12.95\% = 3.19$.

2. POSITIVE MISSION VARIANCE. Develop a positive mission variance to account for the inclusion of the in-house or contracted-out manpower required to perform the processes IAW the A-76 Cost Comparison Performance Work Statement (PWS).

2.1. REMAINED IN-HOUSE. If the processes were cost compared and remained in-house, refer to the UMD, and count the number of civilian authorizations with an MES code of "S". For example, the UMD reflects 6 civilian authorizations with MES Code S to operate BITC. The positive variance would be 6.

2.2. CONTRACTED-OUT. If the processes were contracted-out, refer to the UMD, and count the number of contract manpower equivalents (CME) required to perform the PWS. For example, the UMD reflects 6 CMEs to operate BITC. The positive variance would be 6.

NOTE: In all cases, both negative and offsetting positive variance are required to accommodate work that has been cost compared.

13.17.7. **Core Composition (Objective Flight Standards Only).** Provide a brief statement of the flight core composition to include the core manpower requirement (e.g. 49), the core range, and the major programming factor (i.e., number/type of PAA supported, base population, etc.).

13.17.8. **Standard Data:**

13.17.8.1. **Approval Date.** This will remain blank in the study report.

13.17.8.2. **Man-Hour Data Source.** Enter workshop measurement, work sampling, operational audit technique, or other development method. Identify relevant policy or publications for standards developed without work measurement. For a standard developed by the functional model method, include the statement "Historical Documents - Functional Model."

13.17.8.3. **Man-Hour Equation.** State the equation in terms of man-hours unless it represents constant manpower. If it represents constant manpower, state the equation in terms of whole manpower requirements and identify the requirements as a manpower value. For example, $Y = 1$ (Constant Manpower). If there is more than one equation, include a subparagraph for each. If no equation exists, so state, and document the method for determining manpower requirements (e.g. "See manpower matrix").

13.17.8.4. **Workload Factor:**

13.17.8.4.1. **Title.** Enter the complete workload factor title. If there is more than one WLF, include a subparagraph for each title and state applicability (for example, peacetime, wartime, or specific applicability when modular equations are used). For overhead work

centers using subordinate work center requirements as the WLF, use the title: Required Man-hours in Subordinate Work Centers after Application of the Basic Standard.

13.17.8.4.2. **Definition.** Use enough detail to make sure complete understanding of the WLF. If there is more than one WLF, include a subparagraph for each definition. For overhead work centers that use "man-hours in subordinate work centers" as the WLF, use the WLF definition, "The total number of required man-hours in (identify the subordinate work centers) as a result of standard application." When the data being collected is classified, add these statements after the WLF definition: "This data, when collected, is classified. Mark and safeguard according to AFI 31-401."

13.17.8.4.3. **Source.** Identify the exact source including RCS number, section, line number, or column for each workload factor. If there is more than one WLF, include a subparagraph for each source. If needed, place instructions in this paragraph on how to count the WLF volume before using it in the standard man-hour equation. For overhead work centers that use man-hours in subordinate work centers as the WLF, use this source: "Standard application results for the work centers listed in the definition." If any of these do not have a manpower standard, add the sentence: "For (list those work centers that do not have manpower standards), use the authorizations shown in the unit manpower document (UMD) as the required manpower." Convert these authorizations (do not use fractional manpower ranges) to man-hours by multiplying by the proper MAF.

13.17.8.5. **Study Team.** Enter the office symbol of the manpower and functional representative.

13.17.9. **Application Instructions:**

13.17.9.1. Give general and specific standard application instructions, computations, use of extrapolation limits, aggregation, and use of fractional manpower.

13.17.9.2. Include any special instructions on how to use WLF data in the man-hour equation (if appropriate).

13.17.9.3. Describe the steps to determine any core plus/minus, or variance man-hours (manpower) if appropriate.

13.17.9.4. Include, if relevant, instructions for substituting grades, AFSCs, and civilian authorizations; the treatment of contractual workload; and any pertinent rated position identifiers.

13.17.9.5. For a manpower standard based on prior application of standards in subordinate work centers, give instructions including the specific standards and sequence of application.

13.17.9.6. Develop a clear, concise statement in the application instructions specifying any other work centers whose fractional requirement can be aggregated with this work centers' fractional requirement before rounding to whole requirements. For example, the statement should read: "Fractional manpower requirements resulting from the application of this standard will be aggregated with the fractional requirements for FACs XXXX, XXXX, etc. Aggregation will be done according to procedures in AFI 38-201."

13.17.10. **Statement of Conditions (SOC).** The purpose of the SOC is to document general conditions in the work center which impact manpower requirements. It describes those significant initiatives incorporated into the standard. Use the SOC in the measurement plan and comments from the measurement reports to build the SOC for the standard. Provide a general accounting of the baseline operating environment conditions under which the work centers' manpower was computed. If you have other information which you feel will add to the value of the standard, obtain parent management engineering activity approval prior to its inclusion.

13.17.11. **Flight Description or Process Oriented Description (POD).** Include as attachment 1 to the cover page, a copy of the process or work-activity for each work center covered by the standard. Make sure the POD complies with instructions in chapter 10. For standards developed by directed requirement, staffing pattern, position manning, or functional model, a detailed POD may be replaced by a functional description.

13.17.12. **Standard Manpower Table:**

13.17.12.1. Include an AF Form 1113, **Standard Manpower Table**, or manpower matrix for each flight or work center, as attachment 2 to the cover page of the standard. It should encompass the whole manpower

required (by AFSC and grade) for all possible combinations within the applicability range (e.g. core plus or minus and all variances not specifying a fixed requirement). Develop skills and grades for each manpower increment between the extrapolation limits on the manpower table. Complete the manpower table according to instructions in table 13.1. Use as many pages as necessary to display the standards manpower extrapolation range. If a manpower matrix is used instead of the AF Form 1113, ensure that the same data is reported. Comparable forms built in other software application packages (that is, Excel spreadsheets, Word for Windows Tables, ASCII, etc.) can be used. Contact HQ AFMEA for approval of all comparable forms and manpower matrix prior to finalizing the AFMS.

13.17.12.2. When a colonel requirement or position is identified, the study team verifies OPR justification by complying with procedures outlined in AFI 38-201.

13.17.12.3. Show rated specialty requirements only if the processes described in the POD are clearly associated with the skills described in AFI 36-2105 for the rated specialty.

13.17.12.4. Use instructions in AFMAN 38-208, volume 2, to identify AFSC, skill level, and grade requirements for standards.

13.17.12.5. The manpower table or matrix always shows military specialties and skill levels. Military grades are shown when a military and civilian mix exists. An exception is allowed to this rule if the work center is an all-civilian work center with a military manager. Use the abbreviation CIV under the grade column only when the work center is all civilian. The civilian personnel classification office identifies the suitable civilian grades.

13.17.13. **Variances.** Include as attachment 3 to the cover page, a copy of all approved variances. Complete the following for each variance:

13.17.13.1. **Variance Title.** Provide a short title for each variance. Proceed the title with the application (positive or negative) and the appropriate variance category (mission, environmental, or technological). For example, "Positive Mission Variance for Contract Quality Assurance Evaluation."

13.17.13.3. **Applicability.** Provide a detailed applicability statement (e.g. unique to a specific location, command, etc.).

13.17.13.4. **Impact.** Provide the man-hour (followed by the fractional manpower in parentheses) impact associated with the variance. Also include a breakout of the impact to the level provided in the definition (e.g. down to step level). If the variance is negative, make sure the impact is shown as a negative value. Include any workload data collection (title, definition, and source of count) and specific application instructions, when appropriate.

Table 13.1. Preparation Instructions For Standard Manpower Table, AF Form 1113.		
L I N E	A	B
	To Complete	Enter
1	Work Center FAC	Appropriate title from AFR 700-20 for the work center. If FAC and title does not specifically identify the work center, enter a unique title for identification.
2	Standard Applicability Man-hour Range	The valid man-hour data range for this Standard. Boundaries are the lower and upper man-hour extrapolation values. For a standard that yields a constant manpower requirement, enter the words, "Constant Manpower." When a parabola or ratio equation form is used for the standard, specify the upper limit for the workload. Do this by putting the message "(Upper Workload Value = XXX)" under the man-hour range. When the standard contains more than one equation enter See paragraph 5 "Application Instructions" in this block. Enter the man-hour data and upper workload, if applicable, in paragraph 5 of the AFMS cover page.
3	Air Force Specialty Title	All Air Force Specialty (AFS) titles required in the work center at any requirement level within the applicability range. Use the titles in AFIs 36-2105 and 36-2108 to identify both military and civilian requirements. Abbreviated titles from AFVAs 36-1 and 39-1 are acceptable. Titles must also reflect any prefix or suffix shown in the AFSC column. List officers first, then airmen. Group titles by career area/career progression group, and within career specialty list in order of descending AFSC.
4	AFSC	Air Force Specialty Code (AFSC) that corresponds to the specialty title. List both title and AFSC in descending order of AFSC within career area. When the primary function of the work center is not administration, list administration specialties after all others.
5	Grade	For a military requirement, the grade associated with the specified AFSC based on the policy of two grades per skill level for enlisted requirements. For example: A 7-level will be either a TSgt on MSgt. If any of the manpower requirements are military, treat all requirements as military. When all requirements are civilian, enter "CIV" next to the corresponding AFSC. MAJCOM can replace "CIV" with the appropriate civilian grades in the manpower title. Prior to exercising this option, review AFI 38-201 for policy guidance and AFM 26-749 for procedures. Within AFSC, list grades in descending order. Show all grades below SRA as A1C, and show both 1st and 2nd lieutenants as LT. Use standard data codes, for example, CMS instead of CMSGT.
6	Manpower Requirements	Appropriate distribution of whole manpower requirements by AFSC and grade for each level of requirements within the range bounded by the lower and upper extrapolation limits. To insure that all levels of manpower are covered on the manpower table, consider all of the MAFs that apply, then: (1) The smallest number of people shown on the table is the number required for the largest applicable MAF at the lower extrapolation limit. (2) The largest number of people shown on the table is the number required for the smallest applicable MAF at the upper extrapolation limit.
7	Total	The total requirement for AFSCs and grades in the column. The first and last total will reflect the manpower associated with the extrapolation range.

13.17.14. **Process Analysis Summary.** Include as attachment 4 to the cover page, a process analysis summary. List each process (using the POD process number) by priority, from highest to lowest (highest being listed first). Include the process time (in man-hours and minutes), the projected workload volume (for standards with fixed core manpower), and the resulting fractional manpower (for standards with fixed core manpower).

13.18. Part Three--Data Analysis and Computation Summary:

13.18.1. **General Concepts.** The data analysis and computation summary is prepared by the study team and furnishes relevant information for any reviewer to assess the data and the process used to develop the standard. The summary is an audit trail from data collection through selection of the suitable manpower model. Include the summary in the standards development study report. When SIAMs are used for all applicable indirect tasks, the data analysis and computation summary is limited to direct process analysis only. If measurement is used in lieu of a SIAM task time, data analysis and computation summary will be furnished for each

measured indirect task. The amount of detail needed in Part Four varies with the type of analysis and computations conducted. As a minimum, items needed for each initiative and the final man-hour equation are:

13.18.1.1. Types of analysis conducted.

13.18.1.2. Data analysis detail.

13.18.1.3. Data exclusions.

13.18.1.4. Adjustments made to man-hours and workload used in the initiatives and equations.

13.18.1.5. The correlation and regression (C&R) data file and statistical results for all equations used in the standard. MSDS produces this product that can be directly inserted into Part Three.

13.18.1.6. Analysis and methods used to decide skills and grades.

13.18.2. **Summary Format.** The development method used and the need to report specific information, affects the content and format of the summary. The sample outline in figure 13.4 is a guide for structuring the summary. Tailor the content based on characteristics of the study, but follow the basic format for consistency. Prepare one summary for each work center standard in the study report. Insert MSDS computer products into Part Three to reduce administrative workload and transposition errors.

Figure 13.4. Data Analysis and Computation Summary Format.

DATA ANALYSIS AND COMPUTATION SUMMARY Work Center 1. Data Collection. 2. Data Analysis. 3. Data Exclusions. 4. Data Adjustments. 4.1. Man-hour Audit Trail. 4.2. Workload Audit Trail. 4.3. Process Man-hour Summary. 5. Computation Summary. 5.1. Data Matrix. 5.2. Models Tested and Selected. 5.3. Extrapolation. 6. AFSC and Grade Determination.

13.18.3. Summary Preparation:

13.18.3.1. Data Collection. State the data collection procedures used (for example, operational audit; good operator). Reference major study documents, e.g., the study plan, measurement plan, or executive summaries.

13.18.3.2. Data Analysis. Include a summary of post-measurement data analysis done by the study team before model computations. State the analysis techniques used, such as unit time ratios and frequency-to-work count ratios, and include any observations, conclusions, or results of the analysis. Specific adjustments resulting from this analysis are documented in the audit trail.

13.18.3.3. Data Exclusions. Identify input data points excluded from model computations. State the reasons for the exclusion and the justification to include or exclude these locations in the standard applicability statement. If a location is excluded from computations, but is included for application, furnish specific rationale.

13.18.3.4. Data Adjustments. Adjustments are defined as changes to reported frequencies, per accomplishment times, allowed man-hours, or workload values made by the study team so the data shown in the manpower equation differs from the data sent by an input team. Do not classify computational errors or rounding differences as adjustments. Changes to original measurement data produced by the study team during data analysis which

have been agreed to by the input team and coordinated with the local OPR are classified as corrections. Audit trails of all corrections, including computational errors and rounding differences, are kept in the study team back up files but are not documented in the study report.

13.18.3.4.1. Include a man-hour audit trail that shows the basis for each adjustment and the resulting data change. Display data for all processes or steps that were adjusted as shown in figure 13.5. The basis for adjustment is not restricted to the space shown. Use additional lines if more space is needed.

13.18.3.4.2. Include a workload count adjustment summary showing the basis for each adjustment and the resulting data change for any workload factor counts that were adjusted. Display in table format as shown in figure 13.6. The basis for adjustment is not limited to the space shown.

13.18.3.4.3. Include a man-hour summary to display allowed man-hours by process for each input location. Show man-hours before and after adjustment, when applicable. For work sampling data, enter the total process man-hours after computations for leveling, allowances, and sampling days. Make sure each adjustment is shown in the man-hour audit trail. Show only one value when measured time equals allowed time. See figure 13.7 for the summary format.

Figure 13.5. Man-Hour Audit Trail Format.

PROCESS OF STEP	LOCATION	MAN- HOURS BEFORE CHANGE	ADJUSTMENTS (+/-)	MAN- HOURS AFTER CHANGE	BASIS FOR ADJUST- MENT
2.1.	Alconbury	3.79	-3.64	0.15	level of service
2.4.	Hahn	2.25	+0.25	2.50	PAT Adj.

Figure 13.6. Workload Audit Trail Format.

WORKLOA D FACTOR	LOCATION	COUNT BEFORE CHANGE	ADJUSTMENTS (+/-)	COUNT AFTER CHANGE	BASIS FOR ADJUST- MENT
1.7.	Langley	51.00	-14.36	36.64	April data excluded

Figure 13.7. Process Man-Hour Summary Format.

PROCESS MAN-HOUR SUMMARY									
PROCESS									
Location	1	2	3	4	5	6	7	8	9
A	Allowed Man-Hours	Before Adj After Adj							
B									
C									
D				32.47	14.28	58.11	84.14		
E				28.92	24.15 16.00	47.21 55.36	92.80		

***NOTE:** When both values are the same, only a single value is shown.

13.18.3.5. Computation Summary. When MSDS is used, insert the applicable output products (do not retype them) into the study report:

13.18.3.5.1. A printout of the C&R data file showing, by location, monthly allowed man-hours and the corresponding values of the potential workload factors

tested (see figure 13.8). Show the adjusted data used for final computations. Describe all workload factors tested and found unacceptable. If modular equations have been developed at process level, this matrix should display allowed man-hours and associated workload values for each process at each location.

Figure 13.8. Computation Data Matrix.

Set#	Base	y-value	x(1)	x(2)	x(3)
1	Location 5	1886.860	14.00	35.35	9.00
2	Location 1	1746.710	14.83	32.75	7.50
3	Location 2	2232.870	18.75	52.00	8.67
4	Location 3	1946.110	15.00	36.42	8.83
5	Location 4	1921.540	16.50	42.75	8.25
	MEAN	1946.818	15.82	39.85	8.45
	DEVIATIO N	177.555	1.87	7.72	0.60
(R) OF	TO Y	TO X1	TO X2		
X1	0.8491				
X2	0.9292	0.9619			
X3	0.5280	0.0304	0.2733		

Figure 13.9. Statistical Analysis.

BIVARIATE MODELS				
	*MODEL 1	MODEL 2	MODEL 3	MODEL 4
	LINEAR	POWER	RATIO	PARABOLA
r	0.71544	0.70835	0.69351	0.73261
r ²	0.51186	0.50177	0.48096	0.53672
a	2.17072312	0.98894947	3.45001792	1.18248662
b	0.09018089	0.47124364	0.09129220	0.17210086
c				-
Syx	1.48416	1.49943	1.53042	.001295595923
v	0.28003	0.28291	0.28876	37 1.54571 0.29164
TESTS				
REALISTIC				
	PASSES	PASSES	PASSES	PASSES
ECONOMIC				
	PASSES	PASSES	PASSES	PASSES
F	8.38866	8.05670	7.41296	4.05476
LEV SIG				
	0.020004	0.021865	0.026140	0.067681
	PASSES	PASSES	PASSES	PASSES
	TYPE I	TYPE I	TYPE I	TYPE II
Tc				0.613
LEV SIG				0.559347
				FAILS
EXTRAPOLATION LIMITS				
(Man-hours)				
UPPER				
	9.139	8.309	8.233	8.479
LOWER				
	2.171	1.726	1.126	1.626
RATIO ASYMPTOTE			10.954	
PARABOLA X-APEX				66.418
PARABOLA Y-APEX				6.898
UPPER WORKLOAD VALUE FOR THE RATIO = 114.380				
<<CAUTION>> UPPER EXTRAP LIMITED WITH PARABOLA!				
FOR THE LINEAR MODEL, THE LOWER EXTRAPOLATION LIMIT IS SET AT THE INTERCEPT.				
* MODEL SELECTED				

13.18.3.5.2. A printout of the C&R run showing statistical equations. Specify the equation selected (see figure 13.9).

13.18.3.5.3. The graph (bivariate equations only) of the input data points and the selected regression line.

13.18.3.5.5. Step-by-step development of the model equation when ratio unit times (small population and single-location methodology) is used.

13.18.3.5.4. The rationale for using alternative computations when C&R analysis is not used. Furnish a full review of the process and the justification for selecting the right model.

13.18.3.5.6. Computations used to set the extrapolation limits when MSDS is not used. Show the computations

according to the step-by-step procedures in AFMAN 38-208, volume 2.

13.18.3.6. Air Force Specialty, Skill-Level, and Grade Determination. State procedures and data sources used for determining the suitable manpower distribution of skills and grades that were documented on the manpower table.

13.19. The Air Force Manpower Standard (AFMS) Publication System. The following paragraphs set the procedures for publishing and maintaining the Air Force Manpower Standard (AFMS) system of specialized publications.

13.19.1. **General.** Personnel processing manpower standards need a thorough knowledge of AFMSs, policy, and administrative procedures to process an AFMS. They must be familiar with AFIND 18, *Index of Air Force Manpower Standards*, and have a working knowledge of the AFMEA Bulletin Board System (BBS).

13.19.2. **Responsibilities:**

13.19.2.1. **Installation M&O, Functional OPRs, and MAJCOMs:**

13.19.2.1.1. Acts as office of collateral responsibility (OCR) for an applicable AFMS.

13.19.2.1.2. Develops the AFMS manuscript.

13.19.2.1.3. Initiates an AFMS change or rescission.

13.19.2.1.4. Develops an AFMS rescission letter or message.

13.19.2.1.5. Transmits unclassified AFMS material on the AFMEA BBS.

13.19.2.1.6. MAJCOMs notify manpower offices of new or changed AFMSs.

13.19.2.1.7. Decides when to issue a new or revised AFMS.

13.19.2.2. **HQ AFMEA:**

13.19.2.2.1. Acts as office of primary responsibility (OPR) for all AFMSs developed by AFMEA.

13.19.2.2.2. Performs technical edit of AFMSs developed by AFMEA and MAJCOMs when requested.

13.19.2.2.3. Ensures each AFMS conforms to the determined format and content.

13.19.2.2.4. Publishes AFMSs. Initial distribution of published AFMSs will be made to the MAJCOMs on the AFMEA BBS. MAJCOM M&O offices are responsible for distributing published AFMSs to their installation manpower offices and the functional OPRs.

13.19.2.2.5. Maintains AFMS record sets.

13.19.2.2.6. Maintains the AFMEA BBS conference designated for published AFMSs.

13.19.2.2.7. Coordinates AFMS publication problems with SAF/AAIPDQ.

13.19.2.2.8. Maintains the AFMS system of specialized publications

13.19.2.2.9. Develops, maintains, and publishes AFIND 18.

13.19.3.2.3. **Headers and Footers.** Headers and footers are not required. These will be added during the

13.19.3. **Formatting Procedures.** All manpower standards, to include variances, will be electronically published on the AFMEA BBS. The preferred format for submission for publication is Microsoft Word for Windows (version 2.0 or higher). Specific guidelines follow:

13.19.3.1. **Manuscript First Page Only.** Format the text single spaced, in 10-point Times New Roman, flush left and unjustified. Set your margins to one inch for the top, bottom, right, and left. Beginning at the top of page one, in the upper left hand corner, type "DEPARTMENT OF THE AIR FORCE." In the upper right-hand corner, type "AFMS XXXX." On the next line, on the left-hand side, type "Headquarters, US Air Force." On the third line, on the left hand side, type "Washington DC 20330-5000." Do not type a date as this will be supplied at the time of publication. On the fifth line down, type the title of the AFMS in the center of the page. On the seventh line down, begin typing your manpower standard manuscript. Begin with "1. Mission Statement..." and continue following the guidance provided in paragraph 13.19 for content. Continue down to within six lines from the bottom. The last six lines of the first page will contain the following information: "Supersedes AFMS XXXX, date (See Summary of Changes)," "No. of Pages: xxx," "OPR: HQ AFMEA/PLDM," "OCR: YOUR MAJCOM/OFFICE SYMBOL," and "Distribution: ". The supersession line is only required if the new AFMS replaces an existing standard. If the standard doesn't replace an existing standard, this line is not required. All other lines are still required. Figure 9.4 shows an example of how these lines should appear.

13.19.3.2. **Second and Subsequent Pages:**

13.19.3.2.1. **Manuscript.** Continue typing your manuscript until all required information has been added. Double space after the last entry and type in all capitals, flush with the left hand side, "PUBLISHED UNDER THE AUTHORITY OF THE SECRETARY OF THE AIR FORCE." Double space and list all attachments two spaces over from the center of the page.

13.19.3.2.2. **Attachments.** Begin your attachments immediately following your manuscript. Add them in the order listed in your manuscript. On the first page of each attachment, except the standard manpower table, type the name of the attachment in the center of the first line. Continue typing the rest of the attachment information flush with the left margin. For the standard manpower table, either use the approved AF Form 1113 or develop a matrix that contains the same information. For the approved AF Form 1113, use the form currently loaded on the AFMEA BBS, in the Published AFMSs Conference. DO NOT change this form without prior approval from HQ AFMEA/PLDM.

publication process. If you do use them, set them at .5" from the top and bottom of the page.

13.19.3.3. **Electronic File Naming Procedures.** The AFMS file should be submitted as a single document file. In the case of extremely large files (that is in excess of 100 pages), the file can be split into two or more files. Name the file with the FAC of the manpower standard. For example, the file name for the Manpower Office Manpower Standard would be 108A.DOC. The extension, DOC, is supplied by the Word for Windows software. Other software might provide a different extension. Contact HQ AFMEA/PLDM for potential waivers to using Word for Windows software.

13.19.3.4. **File Conversion.** If other than Word for Windows software is used to develop the manpower standard, convert the resulting file to Word for Windows format unless otherwise specified by HQ AFMEA/PLDM. The exception to this is for those standard manpower tables created in Excel or Lotus. These files may be submitted without converting to Word for Windows.

13.19.4. **Compression Procedures.** After the AFMS has been prepared properly for distribution, zip the file using PKZIP and title it with the FAC number (i.e., 43A0.zip). PKZIP will automatically add the extension ".zip." Place the zipped file on the AFMEA Bulletin Board System (BBS) in the Technical Guidance Conference. Send an E-mail message via the BBS to HQ AFMEA/PLDM. If necessary, contact HQ AFMEA/PLDM to obtain the most current userid prior to sending this message. The E-mail message MUST be sent to let HQ AFMEA/PLDM know that an AFMS has been uploaded to the system. The zipped file will be downloaded and the sender will be

notified that it has been received. Also at this time, datafax a signed AF Form 673, **Request to Issue Publication**, to HQ AFMEA/PLDM, ATTN: AFMS Publication Manager. Mail the original to HQ AFMEA/PLDM as soon as possible. The AFMS cannot be published until the AFMS Publication Manager receives the original signed AF Form 673.

13.19.5. **Changes.** Any changes/corrections/updates to the officially published AFMS must go through the formal change process that follows:

13.19.5.1. Update the original AFMS files to incorporate the changes. Identify all changes with an asterisk to the left of the paragraph where the change occurs. This will allow the users to quickly identify where the change occurred. Update the original zip file using the -u option for PKZIP for all files that are changed.

13.19.5.2. Develop the AFMS change transmittal page in accordance with example listed in figure 13.10. The change transmittal page must indicate the page number of the change and state what change have been made to the original manpower standard. This will allow the user to check through the change transmittal page to see exactly which paragraph, line, etc., has been changed and to either download the complete file or just the change. Name the change transmittal page file with an extension indicating the number of the change. For example, change 1 to the manpower office manpower standard would be 108a.ch1. Word for Windows does allow you to change the extension from DOC to whatever extension you require.

Figure 13.10. AFMS Change Transmittal Page.

DEPARTMENT OF THE AIR FORCE Headquarters US Air Force Washington DC 20330 AFMS TITLE <AFMS XXXX>, <original publishing date>, is changed as follows: 1. Purpose of Change(s.) <Provide a brief explanation of the change. For example, "This change addresses decentralization of special orders workload, revises the definition for the defense printing support variance, and changes the man-hours for several approved variances." Make sure that you include enough information so that the user can easily identify what type of change is occurring.> 2. Explanation of Change(s.) New or revised paragraphs are indicated by an * in the original AFMS and also listed below: <list each change in numerical sequence. That is, start with 2.1. and continue until all changes are listed. Briefly explain what the change is and why it is required. The following is only an example:> 2.1. Manuscript, page 4, para 7d. Paragraph was revised to read as follows: "Determine the total man-hours by adding the man-hours from steps 2 and 3." 2.2. Attachment 1, page 9, Process 39. Deleted: MANAGES ADMINISTRATIVE ORDERS PROGRAM. This process was decentralized to other base agencies. 2.3. Attachment 3, Approved Variances, variance 4, page 25, para b. Added Langley AFB (+94.14 man-hours per month). 3. Page Insert Changes: PUBLISHED UNDER THE AUTHORITY OF THE SECRETARY OF THE AIR FORCE NOTE 1. The symbols "<" and ">" indicate areas where information is required. These symbols are provided for informational reason only and should not be included in the change. NOTE 2. This date is determined during the publication process and does not have to be supplied by the submitter. <hr style="width: 20%; margin-left: 0;"/> Supersedes Change XX, DD MMM YY <Use only if the change supersedes a previously printed change.> No. of Printed Pages: <Will be determined during the publication process> OPR: HQ AFMEA/PLDM OCR: YOURMAJCOM/OFFSYM Distribution: F	Change 1 <AFMS XXXX> <XX month YYYY> (See Note 1 below)
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13.19.5.3. Once the change transmittal page is completed, zip the change transmittal page and updated AFMS using the instructions in paragraph 13.19.4. Coordinate the

AFMS change using the AF Form 673. Follow the instructions in paragraph 13.19.4 for forwarding the signed form to HQ AFMEA/PLDM.

Chapter 14

TRIAL IMPACT APPLICATION

14.1. General Concepts:

14.1.1. Once a manpower standard or variance has been developed, the next step is to apply the standard. This accomplishes two objectives. It validates that the standard or variance captures all mission essential workload and predicts what the manpower impact could be if the standard is approved for implementation. Application results are used to brief senior staff and are filed for historical purposes.

14.1.2. The process consists of three basic steps: workload factor collection and validation; manpower standard trial application; and documenting what the predicted manpower impact would be if the standard is implemented.

14.2. Workload Values for Peacetime Application of Standards. Collect the workload factors identified in the manpower standard or variance. The baseline quarter for a trial impact application is the fourth quarter of the fiscal year in which implementation is scheduled. Since the trial impact application only addresses one fiscal quarter, make sure the workload levels represent the average monthly level of work present in the quarter. Look at historical monthly data to set up existing workload characteristics (for example, relatively stable levels or increasing and decreasing trends). Assure the historical workload counts are verified. To analyze this historical data:

14.2.1. Get at least one full cycle of WLF data.

14.2.1.1. For WLFs that have been routinely reported in the past and have not had a definition change, get two to three years of historical data (based on availability). The more data used in the analysis, the more confidence the average WLF value inspires.

14.2.1.2. Less than a full cycle of data may be all that is available. If so, use caution in making assumptions about the relevance of averages or trends based on this limited data.

14.2.2. Construct a control chart for each WLF. Plot each month of data and use the mean of all data points as the center line. The upper and lower control limits equal two standard deviations of this mean.

14.2.3. Study the control charts. This activity requires the use of common sense, logic, and research abilities.

14.2.3.1. First, look at the control chart to pin-point possible outlying months of data. To find the reasons for these workload levels, research past records and discuss this data with the functional OPR.

14.2.3.1.1. If these months are not representative of the work center and the craftsman understands the reasons why they are different (for example, incorrect reporting), exclude them and reconstruct the control chart.

14.2.3.1.2. If the values for these months are in error and a corrected value can be accurately documented and supported, adjust the values for these months and reconstruct the control chart.

14.2.3.1.3. If no explanations can be found for the outlying months, assume the data correct.

14.2.3.2. If research shows that an extraordinary situation existed that caused most of the historical data for a work center to be nonrepresentative, then adjust reported workload data to more accurately show the workload levels. After this has been done, give a full explanation of the situation and how adjusted workload values were computed.

14.2.4. Make conclusions about the WLF data. The craftsman looks at the control chart to see how the points are distributed about the mean after validating the data.

14.2.4.1. If points are equally distributed about the mean, this shows relative workload stability. When logic supports this conclusion, use the mean as the workload value.

14.2.4.2. If the points show a steadily increasing or decreasing trend, this may show a slowly evolving change in work center workload.

14.2.4.2.1. If thorough research can show that this trend will continue at the same rate, get the workload value by averaging only the last three months of data.

14.2.4.2.2. If the trend appears to have leveled off for the last 3 months at a higher or lower level, use that level as the workload value.

14.2.5. Document results of the historical workload analysis. Each base included in the trial impact application will document its data as directed by the study team.

14.3. Work Center Manpower Requirements:

14.3.1. Once workload values are collected and verified for the baseline fiscal quarter, use this workload in the standard man-hour equation to find work center manpower requirements.

14.3.2. As part of the work center trial application, include the military and civilian mix. Use military essentiality as the prime consideration for setting up this mix. AFI 38-204, states the basic policy for identifying when manpower must be military and when it can be civilian. Since the results of the trial impact application show the unconstrained manpower requirements of a work center, do not consider current funding ceilings when determining this mix. If application of the military essentiality criteria would dictate a change in this ratio, there is no need to keep an existing ratio between military and civilian manpower. However, if the trial impact application is being done by the study team, use existing ratios or HQ

USAF guidance as a guide for estimating how increases or decreases in work center manpower requirements impact the military and civilian mix.

14.3.3. Some work centers may have part of their workload done by contract personnel. Make an adjustment for the contracted work since standard application results in manpower requirements for in-house personnel. Make this adjustment by subtracting a contract manpower equivalent value from the standard application man-hours.

14.3.3.1. Contract manpower equivalents are the number of equivalent man-hours required if the contracted workload was done in-house.

14.3.3.2. Get contract manpower equivalents by multiplying the contract manpower equivalents shown in the UMD by the pertinent normal workweek civilian MAF.

14.3.4. Some work centers may have other manpower resources available to do assigned work. These resources include nonappropriated fund employees, prison labor, Red Cross volunteers, etc.

14.3.4.1. Work done by these resources is considered gratuitous labor. These resources do backlogged or deferred work that otherwise would not be done because of a lack of manpower authorizations or contract funding. Include these resources if they:

14.3.4.1.1. Do work identified in the POD.

14.3.4.1.2. Are readily available on a continuous, dependable, scheduled basis.

14.3.4.1.3. Are able to furnish an acceptable product or service.

14.3.4.1.4. Are cost effective.

14.3.4.2. To find the level of their contribution, set up an in-service equivalent for these resources that considers their man-hour availability and workload output.

14.3.4.2.2. Since this labor is gratuitous, supervisory workloads must be accommodated from within existing resources.

14.4. Work Center Impact. Ensure the trial impact application includes all bases where the standard applies.

14.5. Documenting the Impact Application. The study team files trial application data compiled for each base as

backup data. The study team assembles the documentation from the trial impact application into sections, one for each standard applied. Within each section, there are two parts: the trial impact application summaries and the explanation of changes.

14.5.1. **Trial Impact Application Summary.** The trial impact application summary for an Air Force standard consists of a summary for the overall Air Force and a summary for each MAJCOM. For Air Force standards and variances, MAJCOMs furnish AFMEA the trial impact summary for each of their bases. MAJCOMs include:

14.5.1.1. To obtain total authorizations for peacetime studies, use the manpower data system file part A (active). To obtain total authorizations for wartime studies, use manpower data system file parts A (active), B (air reserve forces, units), and C (individual mobilization augmentation authorizations).

14.5.1.2. Workload counts used to price out the basic standard and a list of approved variances used to compute total man-hours.

14.5.2. **Explanation of Changes.** This is a narrative description of the overall impact the standard has on the work center. Comment on each of these:

14.5.2.1. What caused the overall increases or decreases in manpower requirement totals: increased workload, new work, decreased workload, productivity improvements, or policy changes?

14.5.2.2. What does the standard buy in terms of additional capability for the Air Force and what would be the result if the standard were not implemented. For example, if a new standard in function XXXX is not funded, it may prevent the function from being able to meet wartime requirements for critical skills and force the continued use of nonappropriated fund civilians in the work center.

14.6. Staffing for Approval. Once all trial applications are assembled, then an overall effect of implementing the standard can be presented to the various Air Staff offices. The result being either approval or disapproval for the actual implementation and application of the standard or variance.

CHARLES R. HEFLEBOWER, Brig General, USAF
Director, Programs and Evaluation

GLOSSARY OF REFERENCES, ABBREVIATIONS, ACRONYMS, AND TERMS***References***

NOTE: The user of this instruction is responsible for verifying the currency of the cited documents.

AFPD 10-1, *Mission Directives* (formerly AFR 23-22)

AFI 10-401, *Operation Plan and Concept Plan Development and Implementation* (formerly AFRs 28-3 and 28-4)

AFI 21-101, *Air Force Aircraft and Equipment Management* (formerly AFR 66-1)

AFI 25-201, *Support Agreements Requirements* (formerly AFR 11-4)

AFI 31-201, *Security Police Procedures* (formerly AFR 125-3)

AFI 31-401, *Information Security Program Management* (formerly AFR 205-1)

AFI 36-205, *Equal Employment Opportunity (EEO) and Affirmative Employment Programs (AEP)* (formerly AFR 40-713)

AFI 36-701, *Labor-Management Relations* (formerly AFR 40-711)

AFI 36-805, *Overtime Work and Holiday Observance* (formerly AFR 40-522)

AFI 36-808, *Absence and Leave* (formerly AFR 40-630)

AFI 36-2105, *Officer Classification* (formerly AFR 36-1)

AFI 36-2108, *Airman Classification* (formerly AFR 39-1)

AFI 36-2202, *Managing and Conducting Military Training Programs* (formerly AFR 50-1)

AFI 36-2402, *Officer Evaluation System* (formerly AFR 36-10)

AFI 36-2403, *Enlisted Evaluation System* (formerly AFR 39-62 and AFP 39-15)

AFI 36-2601, *Air Force Personnel Survey Program* (formerly AFR 30-23)

AFI 36-2611, *Officer Professional Development Guide* (formerly AFR 36-23)

AFI 36-2618, *Enlisted Force Structure* (Formerly AFR 39-6)

AFI 37-160V1, *Air Force Publications and Forms Management Programs - Developing and Processing Publications* (formerly AFR 5-8)

AFI 38-101, *Air Force Organizational Structures* (formerly AFR 26-2)

AFI 38-201, *Determining Manpower Requirements* (formerly AFRs 25-5 and 26-1, Volume 3)

AFI 38-203, *Commercial Activities Program* (formerly AFR 26-1V1)

AFI 38-205, *Wartime Manpower Planning and Programming* (formerly AFR 26-1, Volume 4)

AFI 38-301, *Productivity Enhancing Capital Investment Programs* (formerly AFR 25-3)

AFI 65-301, *Audit Reporting Procedures* (formerly AFR 175-3)

AFI 91-402, *The US Air Force Mishap Prevention Program* (formerly AFRs 127-2 and 127-3)

AFM 26-749, *Command Manpower Data System (CMDs) - Introduction, Users Manual*

AFM 11-1, *Air Force Glossary of Standardized Terms*

AFM 30-130V1, *Base Level Military Personnel System, Users Manual*

AFM 86-2, *Standard Facility Requirements*

AFM 177-101, *General Accounting and Finance Systems At Base Level*

AFR 8-10, *Air Force Manpower Determinant (AFMD) System*

AFR 40-312, *Operating a Position Management Program*

AFR 50-5, *USAF Formal Schools (Policy, Responsibilities, General Procedures, and Course Announcements)*

AFR 700-20V1, *Air Force Data Dictionary (On-Line)*

AFVA 36-1, *Officer Classification Structure Chart*

AFVA 39-1, *Airman Classification Structure Chart*

Abbreviations and Acronyms

All abbreviations and acronyms are located in AFMAN 38-208, volume 2, to preclude duplication.

Terms

All terms are located in AFMAN 38-208, volume 2, to preclude duplication.